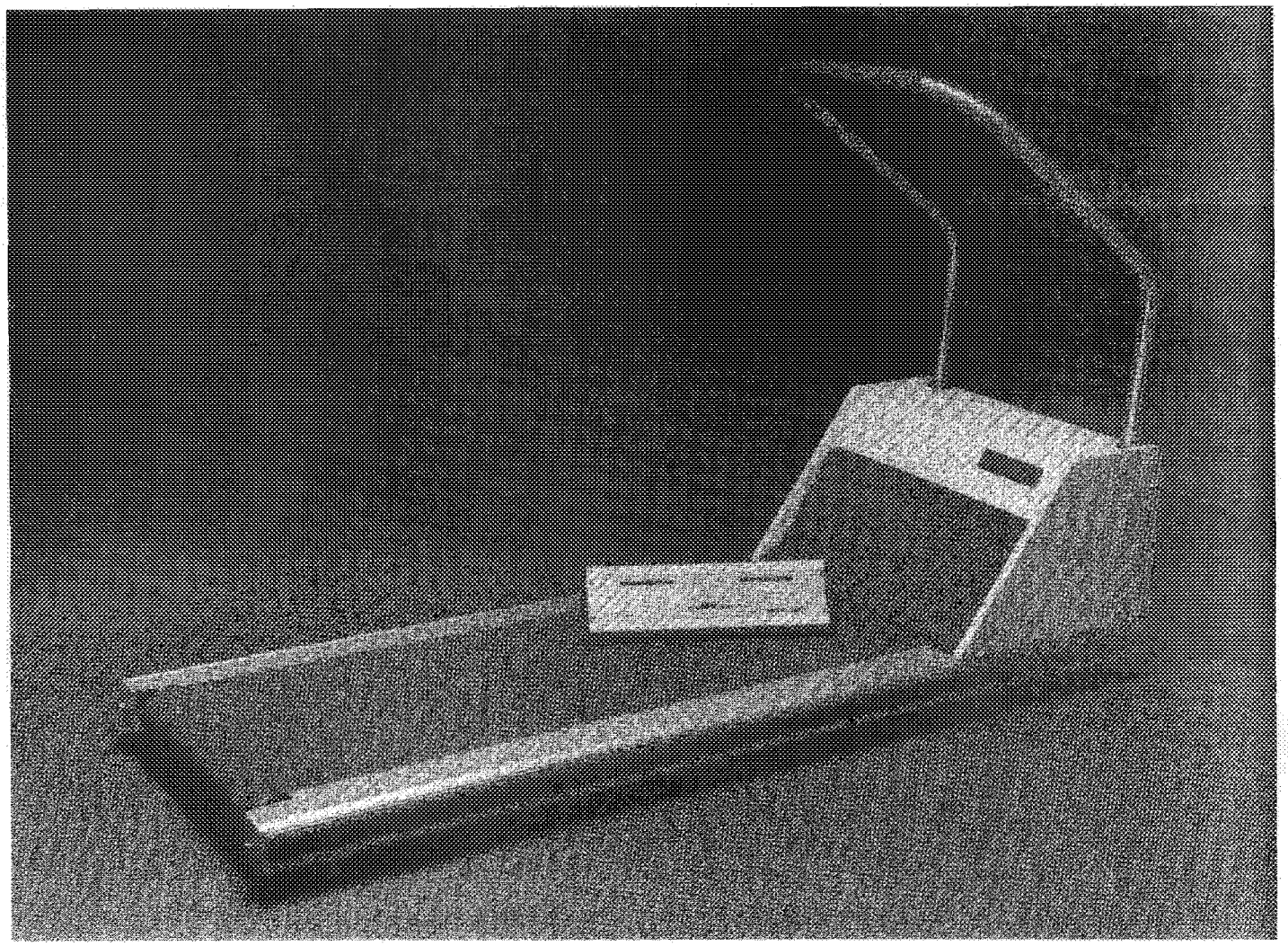
Model Q55/Q65 Medical Treadmill

Service Manual



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HOME EXERCISE EQUIPMENT AND ACCESSORIES

Publication No. 0208-830

Quinton instrument co.

PUBLICATION CHANGE NOTICE

PUBLICATION[S] AFFECTED: **DATE:** May 2, 1984

Q55/Q65 Medical Treadmill Service Manual
Publication Number 0208-830

Serial Numbers Affected: All

1. Section 2.4, page 2-1. Insert the following warning preceeding the step 2 paragraph:

WARNING

EXCESSIVE RISK CURRENT (LEAKAGE) MAY RESULT IF THIS EQUIPMENT IS CONNECTED TO OTHER THAN SINGLE PHASE GROUNDED CENTER TAP SUPPLY.

TABLE OF CONTENTS

SECTION 5. CORRECTIVE MAINTENANCE

LIST OF FIGURES

Thank you for purchasing this product from Quinton Medical Co. With proper care and operation, it will provide outstanding performance, both now and in the years to come.

To assure safe operation and efficient use of your time, please read the entire operator manual before operating the equipment.

If you have questions or problems regarding either operation or service, please contact your local representative or our Seattle office.

If you discover damage to your equipment, refer to Section 2 for instructions on damaged shipments and freight claims.

SECTION 1. INTRODUCTION

1.1 SCOPE

This service manual includes information on how to install and maintain Quinton's Q55 and Q65 Medical Treadmills. The manual does not include information regarding any of the three treadmill controllers that can be used with the treadmill: the Q2000 Stress Test Monitor (P/N 0207-001 through 0207-006), the Model 645 Programmable Treadmill Controller (P/N 0222-001 through 0222-003) or Quinton's Treadmill Controller (P/N 14544-001 or -002).

1.2 ORGANIZATION

The information in this service manual is organized as follows:

Section 1 contains a general description of the Q55 and Q65 Medical Treadmills and lists options, accessories, specifications and references.

Section 2 contains information on receiving, uncrating, inspecting and installing the Q55/Q65 Medical Treadmill. An installation checkout procedure is included.

Section 3 contains the theory of operation for the Q55/Q65. It contains a general description of the treadmill to the functional block diagram level.

Section 4 addresses troubleshooting the Q55/Q65. It describes diagnostic aids built into the treadmill unit and includes fault logic diagrams to assist in troubleshooting. If a failure occurs on the printed circuit board (PCB), component replacement should occur at the factory. For this reason, detailed troubleshooting procedures for the PCB are not provided.

Section 6 contains corrective maintenance procedures. The section includes alignment, adjustment, disassembly, repair and reassembly procedures.

Section 7 contains assembly drawings, cross-indexed to reference designations.

1.3 Q55/Q65 PRODUCT DESCRIPTION

The Q55 and Q65 Medical Treadmills are designed to function as Unit 2 of Quinton's Q Series of stress test products. One of the following Quinton instruments functions as Unit 1, the treadmill controller.

1.3.1 Q2000 Stress Test Monitor

In Quinton's System Q, the treadmill is a peripheral to the Q2000 Stress Test Monitor. Figure 1-1 shows the System Q (Q2000 with Q55).

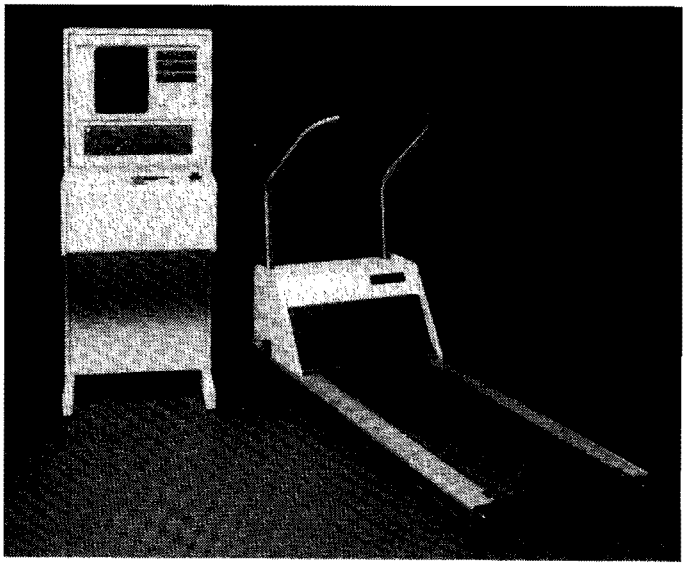


Figure 1-1 System Q (Q2000 with Q55)

In System Q, the Q55 or Q65 depends entirely upon the Q2000 for operational control. The operator can use the dedicated treadmill controls on the Q2000 front panel to change speed or grade. The operator can also use a stored treadmill protocol, programmed by the operator, to control speed, grade and duration for each stage of the protocol.

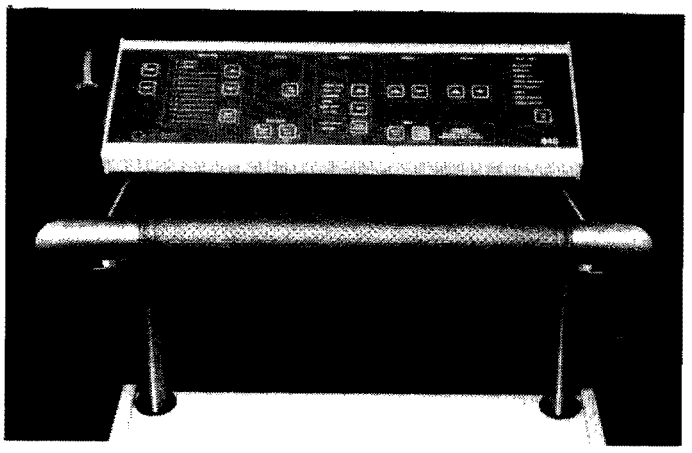


Figure 1-2 Model 645 Programmable Treadmill Controller

1.3.2 Model 645 Programmable Treadmill Controller

Quintons Model 645 Programmable Treadmill Controller (PTC) can also be used to run the Q55 or Q65. The 645 PTC is a microprocessor-controlled system that can automatically control the Q55 or Q65 during a stress test. The 645 PTC can store up to 12 protocols, two of which are permanently stored. The other 10 protocols can be programmed by the operator. Controls on the 645 PTC also allow manual control of the treadmill. The 645 PTC displays metabolic information as well as speed and grade indication. Figure 1-2 shows the Model 645 Programmable Treadmill Controller.

1.3.3 Treadmill Controller

A third control device that can be used with the Q55/Q65 is Quinton's Treadmill Controller. Figure 1-3 shows the Q65 with the Treadmill Controller. In this configuration, treadmill control is totally manual.

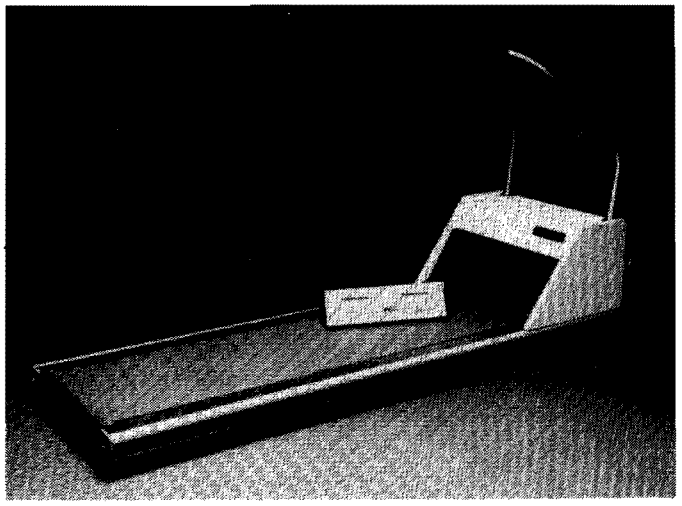


Figure 1-3 Q65 with Treadmill Controller, P/N 14544-002

1.4 TREADMILL CONTROLLERS

Any of the following treadmill controllers can be used to operate the Q55/Q65 treadmill.

Treadmill Controller	Part Number
Q2000 Stress Test Monitor	
230V, 60Hz	0207-001
230V, 50Hz	0207-002
100V, 60Hz	0207-003
100V, 50Hz	0207-004
208V, 60Hz	0207-005
115V, 60Hz	0207-006
645 Programmable Treadmill Controller	
Handrail Mount	0222-001
Table Top	0222-002
Rack Mount	0222-003
Treadmill Controller	
Q55 Treadmill	14544-001
Q65 Treadmill	14544-002

1.5 ACCESSORIES

The following accessories are shipped with the Q55/Q65. Your Quinton sales or service representative will inventory these items during installation.

Accessory	Part Number
Handrail Assembly	12976-001
Handgrip, Fabric	13802-001
Operator Manual	0208-841

1.6 OPTIONS

The following options are available for the Q55/Q65:

1.6.1 Power Options

Q55 Option	Part Number
230V, 60Hz, Single phase	0208-001
230V, 50Hz, Single phase	0208-002
100V, 60Hz, Single phase	0208-003
100V, 50Hz, Single phase	0208-004
208V, 60Hz, Single phase	0208-005
115V, 60Hz, Single phase	0208-006

Q65 Option	Part Number
230V, 60Hz, Single phase	0221-001
208V, 60Hz, Single phase	0221-005

CAUTION

Treadmill users are advised that an autotransformer should not be used to increase 115 Vac to 230 Vac to run the treadmill. Consult your local licensed electrician to correct the voltage at your facility.

1.6.2 Hardware Options (Q55/Q65)

Option	Part Number
Overhead Mask Support	13689-001
Side Handrail, Short	13690-001
Side Handrail, Long	13691-001
Emergency Off Switch	13675-001
Catheter Arm Support	0043-002

1.7 SPECIFICATIONS

1.7.1 Q55 Specifications

Performance

Maximum rated load: 350 lb (159 kg), Bruce Protocol

Belt speed range: 1 to 10 mph (1.6 to 16 kph), continuously adjustable

Elevation range: 0 to 25% grade (0 to 14°)

Power options:

100 Vac, 1 PH, 50 or 60 Hz, 24 A
115 Vac, 1 PH, 60 Hz, 24 A
230 Vac, 1 PH, 50 or 60 Hz, 12 A
208 Vac, 1 PH, 60 Hz, 12 A

Minimum branch circuit requirements:

100 Vac - 30 A
115 Vac - 30 A
208 Vac - 15 A
230 Vac - 15 A

NOTE

The branch circuit must be dedicated to the Q55 only. If used with a Q2000, do not connect the Q55 and the Q2000 to the same circuit.

Environmental

Operating temperatures: 60 to 95°F (15 to 35°C)

Storage temperatures: 0 to 120°F (-18 to 49°C)

Humidity: 30 to 90%, noncondensing

Physical

Nominal walking area: 20 x 55 in (51 x 140 cm)

Floor space required: 28 x 76 in (71 x 193 cm)

Walking surface height: 5.3 in (13.5 cm)

Handrail height: 43 in (109 cm) above floor

Weight: 400 lb (181 kg)

Shipping weight: 500 lb (227 kg)

1.7.2 Q65 Specifications

Performance

Maximum rated load: 400 lb (181 kg), Bruce Protocol

Belt speed range: 1.5 to 15 mph (2.4 to 24 kph), continuously adjustable

Elevation range: 0 to 25% grade (0 to 14°)

Power options:

230 Vac, 1 PH, 60 Hz, 16 A
208 Vac, 1 PH, 60 Hz, 16 A

Minimum branch circuit requirements:

230 Vac - 20 A
208 Vac - 20 A

NOTE

The branch circuit must be dedicated to the Q65 only. Do not connect the Q65 and the Q2000 to the same circuit.

Environmental

Operating temperatures: 60 to 95°F (15 to 35°C)

Storage temperatures: 0 to 120°F (-18 to 49°C)

Humidity: 30 to 90%, noncondensing

Physical

Nominal walking area: 20 x 65 in (51 x 165 cm)

Floor space required: 28 x 86 in (71 x 218 cm)

Walking surface height: 5.3 in (13.5 cm)

Handrail height: 44 in (111 cm) above floor

Weight: 425 lb (193 kg)

Shipping weight: 600 lb (272 kg)

1.8 OPERATOR MANUAL

A comprehensive operator manual is supplied with this equipment. You may order additional copies by writing to Quinton Instrument Company, 2121 Terry Avenue, Seattle, Washington 98121; or by calling our Customer Service Department at (800) 426-0347.

1.9 REFERENCES

The following references were used in the preparation of this manual:

1. Operator manual for the Model Q55/Q65 Medical Treadmill, P/N 0208-841

2. Operator manual for the Quinton Model Q2000 Stress Test Monitor, P/N 0207-840

3. Service manual for the Quinton Model Q2000 Stress Test Monitor, P/N 0207-830

4. Technical manual for the Model 645 Programmable Treadmill Controller, P/N 0222-830

SECTION 2. OPERATION

2.1 INTRODUCTION

This section contains the receiving, unpacking and inspection, and installation procedures.

2.2 RECEIVING

Before leaving the factory, the Q55/Q65 is thoroughly inspected and tested for proper operation. To minimize shipping damage, the Q55/Q65 is shipped in a specially designed packing crate. The Q55 weighs 500 lb. (272 kg) and the Q65 weighs 600 lb. (272 kg).

Quinton Instrument Company's responsibility for this shipment ends upon delivery to the carrier, who assumes responsiblity for safe delivery. Therefore, when damage or loss to merchandise shipped FOB Factory is sustained in transit, claims must be made by the customer and directed to the carrier.

When shipments are sent FOB Destination, Quinton Instrument Company will file the claim, provided we are furnished with an acceptable inspection report from the carrier. If a claim is disallowed because of failure to obtain the report, repair charges will be billed to the customer.

Upon receipt of the shipment, the containers or units should be inspected for external damage. Discrepancies should be noted on the waybill, which should then be signed by the carrier's agent. Failure to adequately describe external evidence of loss or damage on the waybill may result in the carrier refusing to honor the claim.

2.3 UNPACKING AND INSPECTION

The front handrail assembly and the operator manual are shipped with the Q55/Q65 Medical Treadmill as standard equipment. These items are not listed on the waybill.

1. Inspect the shipping crate for evidence of damage.

2. Pull the nails out of the lower skirting of the crate.

3. Cut the bands.

4. Lift the top of the crate straight up off the pallet.

5. Remove the plastic sheeting.

6. With the aid of a second person, lift the flat end of the treadmill no more than 6 inches off the pallet.

CAUTION

Lifting from the wrong end of the treadmill or lifting more than 6 inches off the pallet or floor can damage the treadmill.

CAUTION

Limit switches on the underside of the treadmill can break if the treadmill is not lifted carefully off the pallet.

7. Ease one of the front wheels off the pallet.

8. Ease the second wheel off the pallet.

9. Roll the treadmill into the desired position.

10. Install the handrail by positioning on the two supports provided on the headframe.

2.4 INSTALLATION CHECKOUT PROCEDURE

WARNING

Do not start belt when anyone is standing on it.

1. Verify that the service outlet voltage matches the voltage on the nameplate. If using the Q2000 as the treadmill controller, verify that the treadmill and the Q2000 are on separate branch circuits.

2. Plug the Q55/Q65 power cord into the service outlet.

3. Inspect treadmill connector 2A4W2J1 for damage, then connect the control cable (P/N 13102-001).

4. If using the Q2000 as the treadmill controller, perform the following steps. If no error codes appear during performance of the test, the treadmill is operational.

a. Ensure that the checkout procedure in Section 2.3 of the Q2000 Operator Manual (P/N 0207-840) has been performed.

b. Run treadmill calibration (Steps 1, 2 and 7 of Section 4.4 of Q2000 Service Manual) and store data.

c. Press MASTER RESET.

d. If AUTO TM red LED is on, press AUTO TM to return treadmill to manual operation.

e. Press START.

f. Using speed and grade, increase and decrease (▲ and ▼) controls. Verify that the treadmill can be controlled manually through the entire range specified for both speed and grade.

g. Press STOP and verify that treadmill stops.

5. If using Model 645 Programmable Treadmill Controller as the treadmill controller, perform the checkout procedure in Section 2.3 of the Model 645 Programmable Treadmill Controller Technical Manual (P/N 0222-830).

6. If using Quinton's Treadmill Controller, perform the following steps.

a. Ensure that CABLE CONN LED is on.

b. Press RUN to start the treadmill.

c. Using SPEED and ELEV (grade) increase and decrease keys, verify that the treadmill can be controlled manually through the entire range specified for both speed and grade.

d. Press STOP and verify that treadmill stops.

SECTION 3.
THEORY OF OPERATION

3.1 INTRODUCTION

The Q55/Q65 Medical Treadmill uses one motor to drive a walking belt, one motor to change the speed of the walking belt and one motor to change the grade (elevation) of the treadmill. The treadmill is considered Unit 2 of Quinton's Q Series of stress test products. It can be controlled by any of the following treadmill controllers (the controller is considered Unit 1): the Q2000 Stress Test Monitor, the Model 645 Programmable Treadmill Controller or Quinton's Treadmill Controller. The Q55 and Q65 are functionally identical and use identical cable interfaces to the various types of controllers. The Q55 operates between 1 and 10 mph (1.6 and 16 kph), and the Q65 operates between 1.5 and 15 mph (2.4 and 24 kph).

A drive motor provides the motive force to turn the treadmill drive pulley and move the walking belt. An arrangement of shafts, belts and pulleys, including a variable speed belt, allows a moveable sheave on the input shaft to affect the rate of rotation of the output shaft and the walking belt.

A reversible speed change motor moves the speed change spindle assembly and moveable sheave along the input shaft to effect changes in the speed of the walking belt. A tachometer is linked to the output shaft to monitor the speed of the walking belt.

A grade motor turns a pinion shaft to raise and lower the headframe of the treadmill on two rack gears. A grade potentiometer linked to the pinion shaft by a chain and sprockets allows grade change to be monitored.

A printed circuit board (PCB) assembly contains electrical and electronic elements necessary for motor control and treadmill controller interface. Signals from the controller initiate start/stop, speed increase or decrese, grade change and grade direction change. Feedback signals from the tachometer, grade potentiometer, drive motor, treadmill control cable and walking belt are routed through the PCB to the treadmill controller.

Figure 3-1 shows treadmill components and figure 3-2 shows the functional block diagram for the Q55/Q65 Medical Treadmill. Figure 3-2 is located at the end of Section 3.

3.2 PRINTED CIRCUIT BOARD (PCB)

Motor control relays, fuses and electronic circuits are mounted on the printed circuit board (PCB) 2A1. Mounted on the back of the PCB bracket are drive motor contactor 2K1 and transformer 2T1. Connector 2A1P11 on the PCB provides the interface between the treadmill controller (Unit 1) and the treadmill (Unit 2). Circuits on the PCB and electrical components are described in this section as they relate to the treadmill subassemblies that they control or monitor.

3.3 POWER SUPPLY

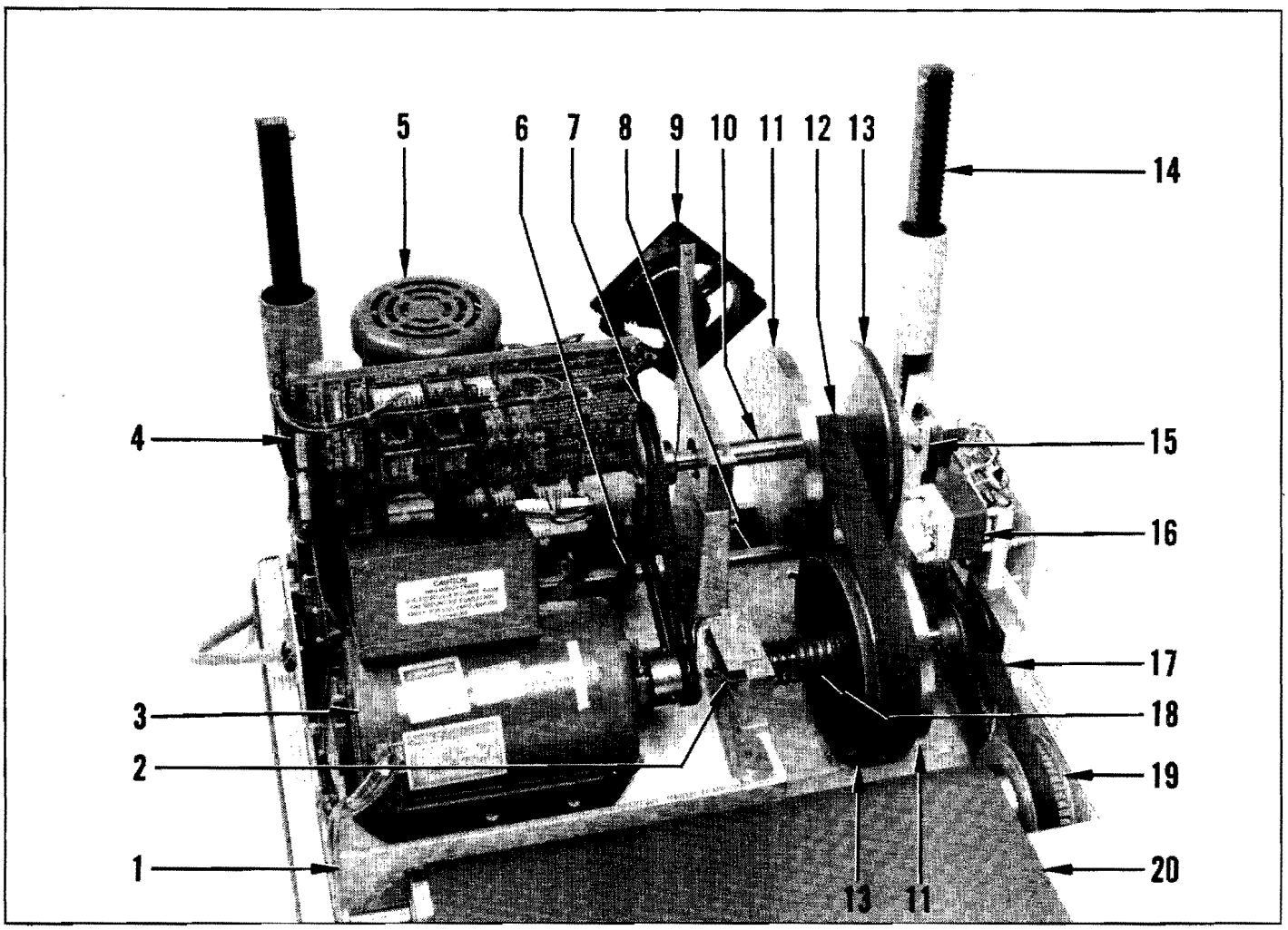
Line voltage is available to treadmill control circuits on the PCB when the power cord is plugged in. Power is routed directly through connectors 2A1P1 and 2A1P6 to the motors and fan. Line voltage is stepped down through transformer 2T1 before it goes to the power supply circuit on the PCB. Transformer 2T1 also provides electrical isolation from primary power.

The power supply circuit uses a diode bridge rectifier, filters and voltage regulators 2A1VR1 and 2A1VR2 to supply +24 Vac to the power supply monitor circuit and +12 Vdc and +23 Vdc to other PCB circuits.

A +24 Vac power supply monitor circuit uses a rectifier/filter, a low voltage comparator, a pulse stretcher and an output driver to sense and indicate low line voltage. Sensitivity can be adjusted by the trip level potentiometer. When low line voltage is sensed, the LO VOLTS LED on the PCB lights and feedback is sent to the treadmill controller.

A +23 Vdc continuity test circuit on the PCB also monitors the treadmill control cable connection to ensure that there is no break in continuity. A CABLE OK LED lights on the PCB unless there is a break in the plug connection circuit. Feedback goes to the treadmill controller if a break is detected.

The cooling fan 2F1 is on any time the drive motor is on.



1 Headframe
2 Tachometer assembly
3 Drive motor
4 Printed circuit board
5 Grade motor
6 Grade potentiometer
7 V-belts
8 Pinion shaft
9 Cooling fan
10 Input shaft
11 Fixed sheave
12 Variable speed belt
13 Moveable sheave
14 Rack gear
15 Speed change spindle assembly
16 Speed change motor
17 Timing belt
18 Output shaft
19 Drive pulley
20 Walking belt

Figure 3-1 Q55/Q65 Medical Treadmill Components

Table 3-1 Drive Motor Specifications

QUINTON PART NUMBER	USED ON	VOLTAGE	FREQUENCY (SINGLE PHASE)	HP	FULL LOAD RPM	FULL LOAD CURRENT	INSULATION CLASS	MOUNT
13657-001	Q55	208-240 Vac	60 Hz	1 1/2	1725	7 1/2 amps	B	Resilient
13657-002	Q55	110-120 Vac	60 Hz	1 1/2	1725	15 amps	B	Resilient
13657-003	Q55	200-240 Vac	50 Hz	1 1/2	1425	8 amps	B	Resilient
13657-004	Q55	100-120 Vac	50 Hz	1 1/2	1425	16 amps	B	Resilient
14560-001	Q65	208-240 Vac	60 Hz	3	3540	15 amps	B	Solid Base

3.4 DRIVE MOTOR

The drive motor 2M2 provides the motive force to turn the treadmill drive pulley and move the walking belt. Table 3-1 shows motor specifications for different motors used in the Q55 and Q65. All are continuous duty, single phase motors that have internal overload protection.

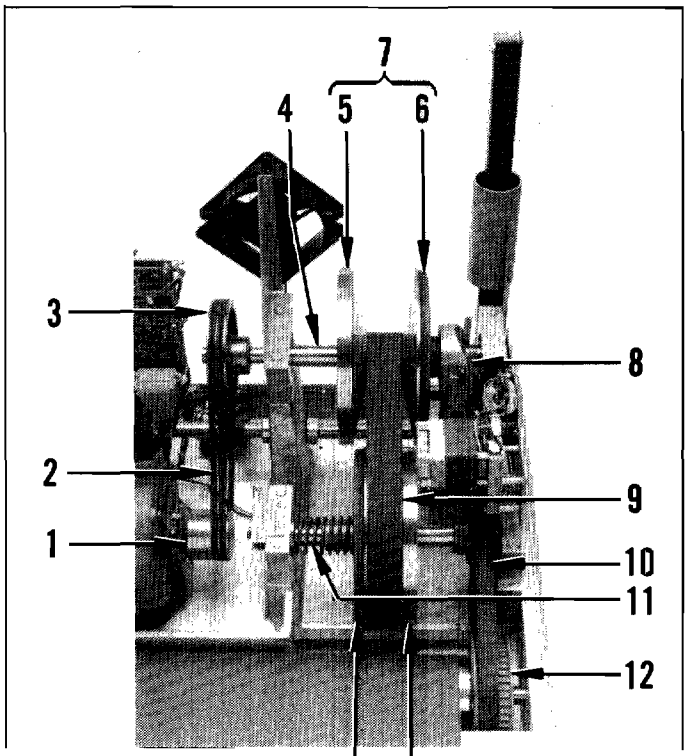
Drive motor contactor 2K1 turns on or shuts off the drive motor when a signal from the treadmill controller energizes the motor contactor driver latch circuit on the PCB.

The +23 Vdc motor contactor driver/latch circuit responds to a START or STOP signal from the treadmill controller. It uses a driver and a latch to keep the motor started or stopped. A signal from the motor overload latch circuit or the EMERGENCY OFF switch overrides any commands to start or stop the motor.

The +12 Vdc motor overload latch circuit uses optical isolator 2A1U5 to monitor a thermal sensor in the motor or motor contactor. When the motor overloads, the optical isolator actuates this circuit to disable the motor contactor driver/latch circuit. The treadmill will not restart until the motor's thermal sensor has cooled and reset and the START switch is pressed. The circuit also lights the MOTOR LED on the PCB and sends feedback to the treadmill controller if an overload condition occurs. The MOTOR LED will stay on until the thermal overload has cleared and the treadmill has been restarted.

3.5 INPUT SHAFT, OUTPUT SHAFT, BELTS AND PULLEYS

An input shaft, an output shaft, belts and pulleys function as a transmission on the Q55/Q65. Figure 3-3 illustrates this arrangement. The following paragraphs describe shaft, belt and pulley operation in detail.



1 Drive motor output shaft
2 V-belts
3 Machined pulley
4 Input shaft
5 Input shaft fixed sheave
6 Input shaft moveable sheave
7 Input pulley
8 Speed change spindle assembly
9 Variable speed belt
10 Timing belt
11 Output shaft
12 Drive pulley
13 Output shaft fixed sheave
14 Output shaft moveable sheave
15 Output pulley

Figure 3-3 Input Shaft, Output Shaft, Belts and Pulleys

3.5.1 Input Shaft

The input shaft is equipped with a machined pulley, the fixed and moveable sheaves that comprise the input pulley, and the speed change spindle assembly. Two V-belts link the drive motor output shaft with the input shaft. The input shaft turns at a fixed rate.

The speed change spindle assembly consists of a fork, a speed change spindle and a yoke. As the speed change motor turns the spindle, the fork moves laterally on the input shaft, in tandem with the moveable sheave. The function of the speed change spindle assembly is to position the moveable sheave on the input shaft.

3.5.2 Output Shaft

The output shaft is equipped with a spring, the moveable and fixed sheaves that comprise the output pulley, and a timing pulley. The output shaft turns at a variable speed depending on the pitch diameter of the output pulley.

3.5.3 Variable Speed Belt

A variable speed belt links the input pulley and the output pulley. Because the four sheaves in the arrangement are graded, the variable speed belt can be forced in or out between pairs of sheaves to increase or decrease pitch diameter. Spring tension against the moveable sheave on the output shaft tends to force the belt outward, increasing the pitch diameter of the output pulley. When the speed change fork moves the moveable sheave on the input shaft inward, the pitch diameter of the input pulley increases and causes a concurrent decrease in the pitch diameter of the output pulley. This turns the output shaft at an increased rate.

3.5.4 Treadmill Drive and Idler Pulleys

The timing pulley on the output shaft drives the treadmill drive pulley. The drive pulley, in turn, drives the walking belt and the treadmill idler pulley.

3.6 WALKING BELT AND BELT TRACKING SWITCHES

The walking belt is the treadmill conveyor belt. Two factory-set limit switches on the underside of the treadmill deck monitor the lateral movement of the walking belt. If the walking belt comes close to touching an edge of the treadmill drive pulley, one of the switches actuates. If a switch actuates, the BELT LED on the PCB automatically lights and a message is sent to the treadmill controller that a hazardous condition exists. On the Q2000, the message TREADMILL BELT TRACKING ERROR appears on the screen. On the 645 PTC, the BELT TRACKING LED in the SELF TEST box lights. On the Treadmill Controller panel, the BELT TRACK LED lights.

3.7 SPEED CHANGE MOTOR ASSEMBLY

The speed change motor assembly 2A2 consists of a reversible, split-capacitor gear motor 2A2M1 and the speed change capacitor 2A2C1. The speed change motor is linked by a chain and sprockets to the speed change spindle assembly that moves the assembly laterally along the input shaft. The speed change capacitor provides the phase shift necessary to start the motor. The motor cannot be operated unless the drive motor is also on.

Relay drivers 2A1U3 on the PCB receive logic level signals from the treadmill controller and deliver appropriate voltage to the appropriate speed change motor relay. Speed change motor relay 2A1K3 controls speed increse, and speed change motor relay 2A1K4 controls speed decrease. Relay 2A1K3 is also a lockout relay to prevent both relays from energizing simultaneously.

3.8 TACHOMETER ASSEMBLY

Tachometer assembly 2A3 uses an optical emitter and a sensor that run on +12 Vdc from the PCB. The sensor measures the rate of light beam interruptions caused by a rotating beam chopper. The resulting variable frequency pulses are converted by the tachometer circuit into a dc voltage proportional to the speed of the treadmill.

The tachometer circuit uses frequency doubling pulse amplifier 2A1U1 and a low pass filter (also 2A1U1) to convert the variable frequency pulses received from the tachometer. The output of the filter is referenced to +12 Vdc. The tachometer current source then changes the voltage signal to a current signal and transmits the current signal back to the treadmill controller. Tachometer gain potentiometer 2A1R13 allows calibration of the tachometer current

source so that 1 milliampere represents a rate of 1 mile per hour.

3.9 GRADE MOTOR

Grade motor 2M1 is a right angle gear motor. The motor shaft is linked to a pinion shaft by a chain and sprockets. The chain turns a sprocket on the pinion shaft to raise and lower the headframe of the treadmill on two parallel rack gears.

Relay drivers 2A1U3 on the PCB receive logic level signals from the treadmill controller and deliver appropriate voltage to grade change relay 2A1K1 or grade direction change relay 2A1K2.

Grade change relay 2A1K1 starts or stops the grade motor. It works with relay 2A1K2 to increase or decrease grade, depending on the polarity of the direction control windings.

Grade direction change relay 2A1K2 controls the polarity of the direction control windings in the grade motor. The change in polarity does not cause the grade motor to turn, although it alters the direction that the grade motor shaft will spin. The .2 second delay circuit on the PCB delays the signal to relay 2A1K2 to ensure that the grade motor stops completely before changing direction.

3.10 PINION SHAFT AND RACK GEARS

The pinion shaft and rack gears allow the entire headframe assembly to tilt for grade increase or decrease. The pinion shaft rotates two sprockets at either end to move up and down a parallel pair of rack gears. Mechanical stops at the top of the rack gears prevent upward overtravel, while the deck prevents downward overtravel. The pinion shaft has a torque limiting device to prevent damage to the grade motor if it continues to turn at the upper or lower limits of travel.

3.11 GRADE POTENTIOMETER

Grade potentiometer 2R1 monitors the rotation of the pinion shaft to indicate changes in grade. The potentiometer is linked to the pinion shaft by a pair of sprockets and a chain. The potentiometer runs on +12 Vdc from the PCB. The voltage signal from the potentiometer is changed by the grade current source on the PCB to a current feedback signal that goes to the treadmill controller. Grade zero potentiometer 2A1R29 allows calibration of the grade current source when the grade angle is zero so that an increase in voltage represents an increase in grade. Grade gain potentiometer 2A1R30 allows calibration of the grade current source so that a 1 milliampere change represents a 2% change in grade.

FIGURE 3-2 FUNCTIONAL BLOCK DIAGRAM MAJOR COMPONENTS

PCB	BLOCK	MAJOR COMPONENTS
2A1	Power Supply Circuit	CR1, CR2, CR17, CR20, VR1, VR2
	Continuity Test Circuit	CR6
	Power Supply Monitor Circuit	U1, U3, U4, CR9
	Optical Isolator	U5
	Motor Overload Latch Circuit	U4, U5, Q5, CR10
	Motor Contactor Driver/Latch Circuit	Q3, Q4
	Tachometer Circuit	U1
	Tachometer Current Source	U2, Q2
	Grade Current Source	U2, Q1
	.2 Second Delay Circuit	U3, U4
	Relay Drivers	U3
	Grade Change Relay	K1
	Grade Direction Change Relay	K2
	Speed Motor Change (Increase) Relay	K3
	Speed Motor Change (Decrease) Relay	K4
	CABLE OK LED	CR6
	LO VOLTS LED	CR9
	MOTOR LED	CR10
	BELT LED	CR5
	Tachometer Gain Potentiometer	R13
	Trip Level Potentiometer	R23
	Grade Zero Potentiometer	R29
	Grade Gain Potentiometer	R30

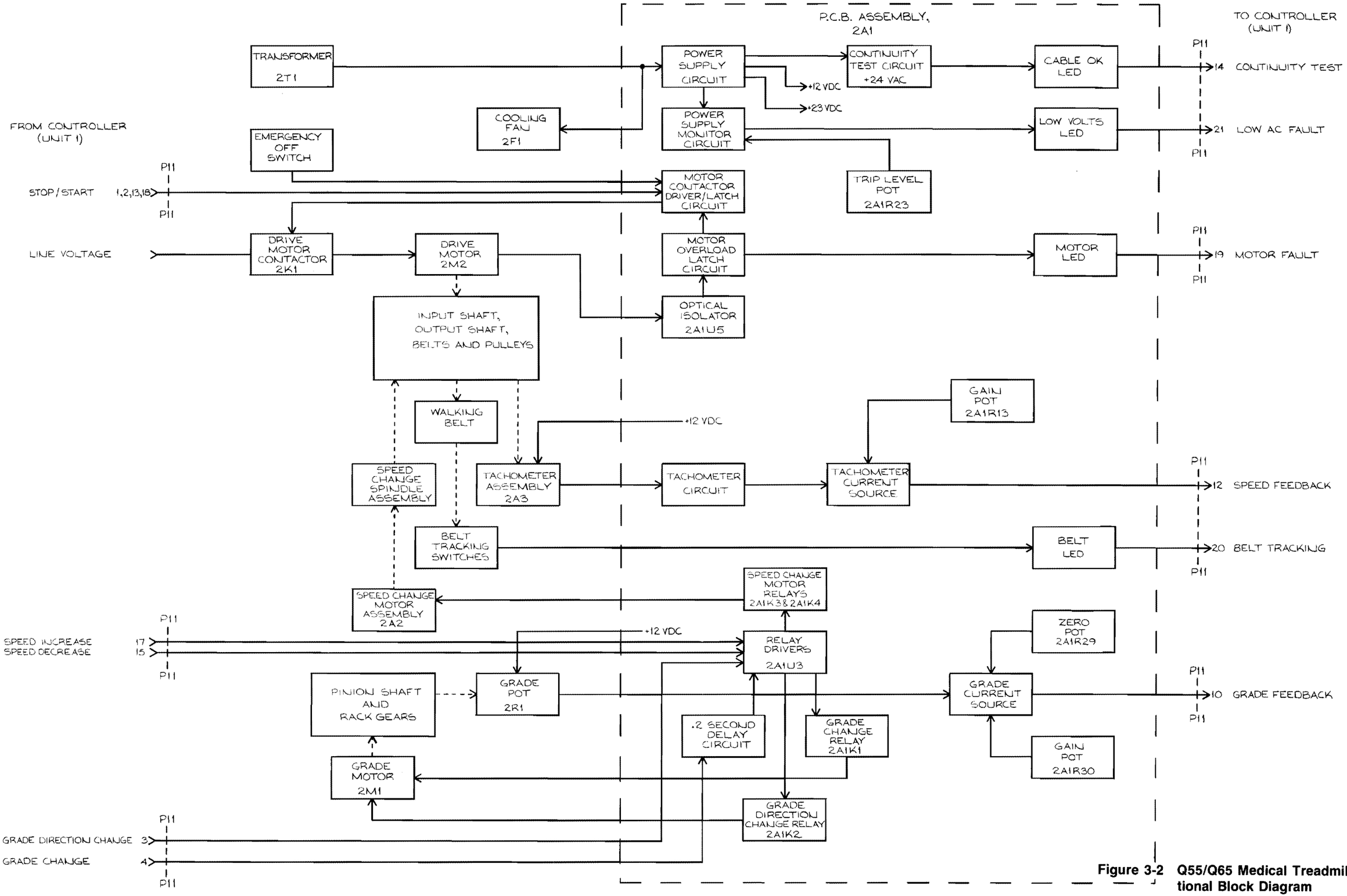


Figure 3-2 Q55/Q65 Medical Treadmill Functional Block Diagram

SECTION 4. TROUBLESHOOTING

4.1 INTRODUCTION

This section contains fault logic diagrams, test data and waveform graphics to aid in isolating a malfunction to a faulty component. After a faulty component has been identified, refer to Chapter 5 for corrective maintenance procedures.

If a failure occurs on the printed circuit board (PCB), component replacement should occur at the factory. For this reason, detailed troubleshooting procedures for the PCB are not included.

4.2 DIAGNOSTIC AIDS

Each type of treadmill controller incorporates its own diagnostic aids. Quinton's Treadmill Controller (P/N 14544-001 or 14544-002) is the simplest and has four LEDs on the control panel that correspond to the four LEDs on the PCB of the treadmill. These LEDs show status of the belt switches, cable continuity, voltage to the treadmill and motor overload.

The Model 645 Programmable Treadmill Controller (645 PTC) also incorporates diagnostic aids. An automatic initialization test is conducted any time the treadmill is turned on or MASTER RESET is pressed, and information is displayed in the SELF TEST block of the control panel. In addition, a treadmill calibration procedure (Section 6.2 of the 645 PTC Technical Manual) should be performed at installation, once every six months and after maintenance is performed. A complete description of the diagnostic aids built into the 645 PTC can be found in Section 5.3 of the 645 PTC Technical Manual.

The Q2000's diagnostic aids are described in Section 4 of the Q2000 Service Manual. The Q2000 also conducts an automatic initialization test each time it is turned on or reset, and error messages are displayed on the screen. Treadmill calibration (Steps 1, 2 and 7 of Section 4.4 of the Q2000 Service Manual) should be performed at installation, once every six months and after maintenance has been performed.

4.3 TROUBLESHOOTING PROCEDURE

The fault logic diagrams that follow are designed to lead you through an operability test of the Q55/Q65 Medical Treadmill. They aid in isolating a malfunction to the treadmill or to the treadmill controller. A square on the diagram indicates a procedural step, and a diamond on the diagram indicates a decision point. Figure 4-1 shows the waveform needed to troubleshoot the tachometer.

NOTE

Servicing your own equipment while it is still within the warranty period may void the warranty.

WARNING

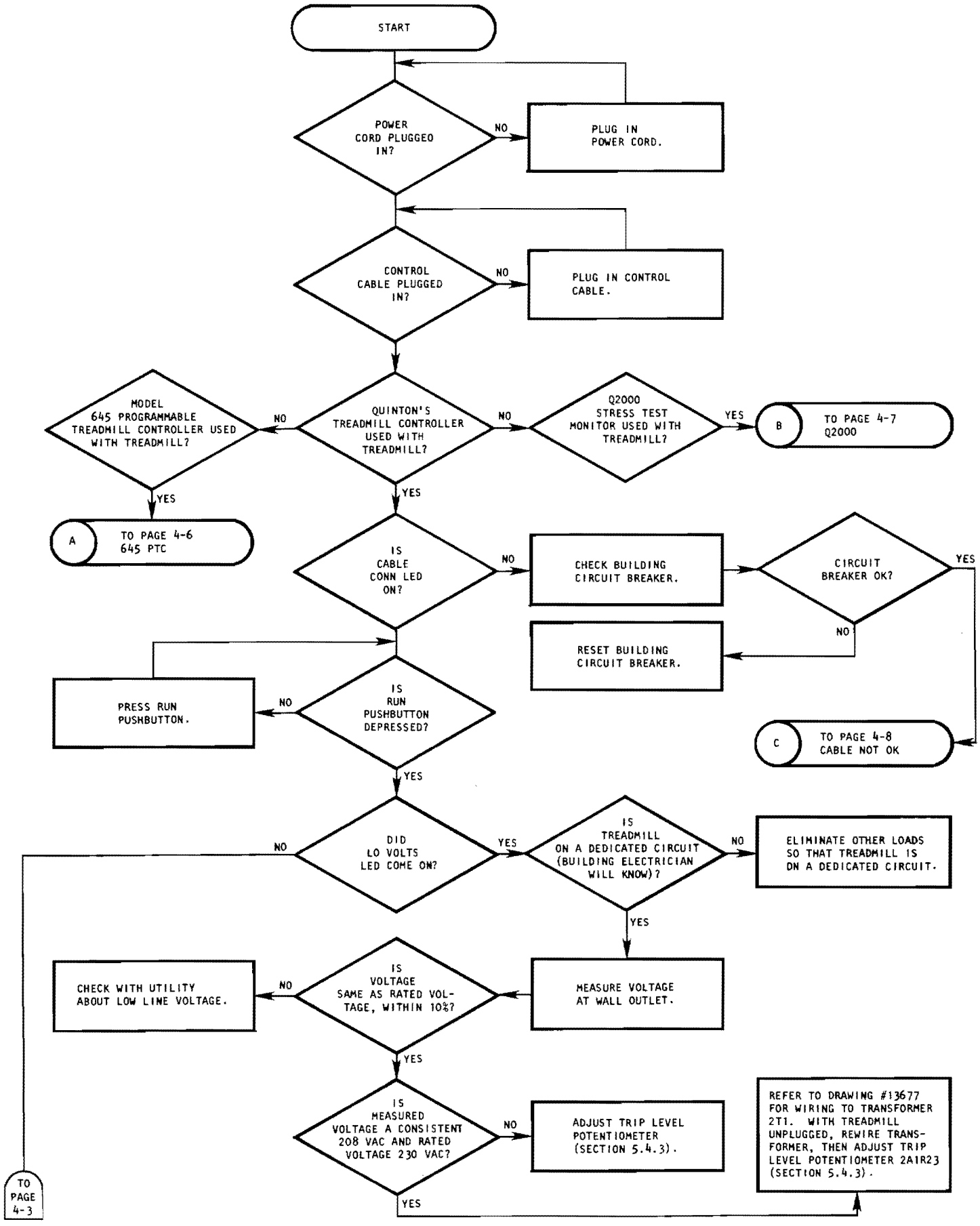
To prevent high voltage electrical shock, unplug the treadmill any time you remove the hood.

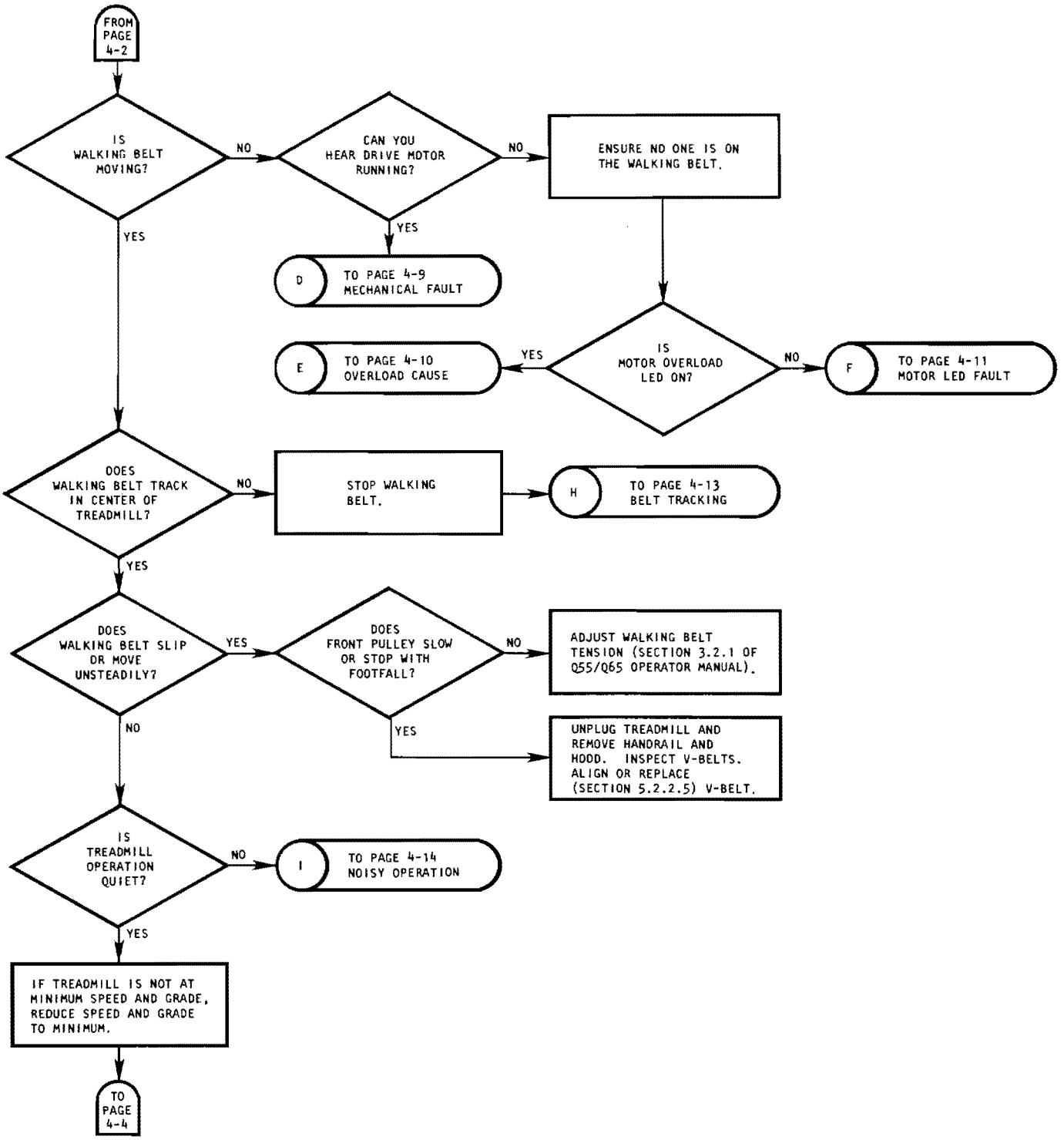
WARNING

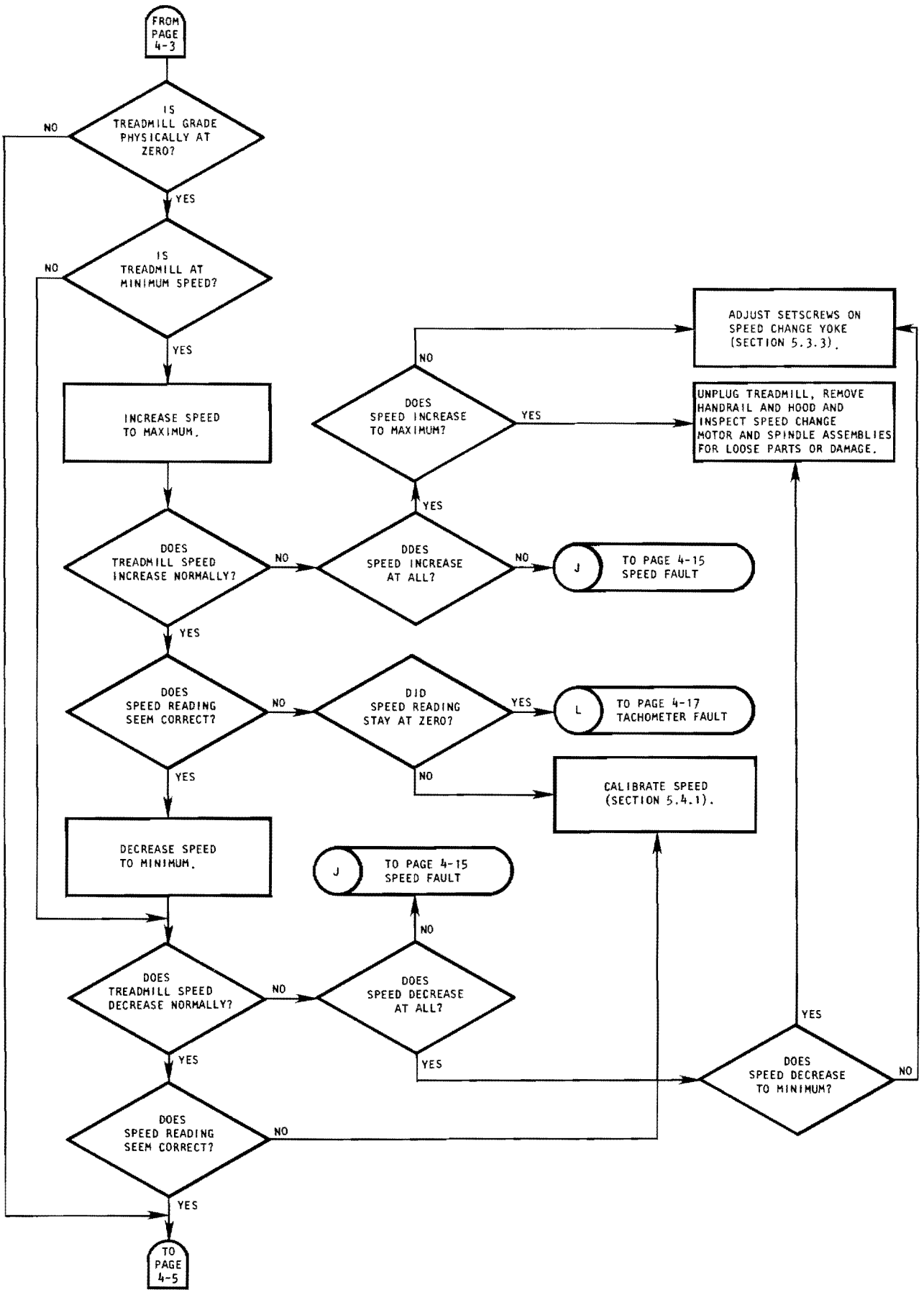
Do not wear loose clothing when working around rotating machinery.

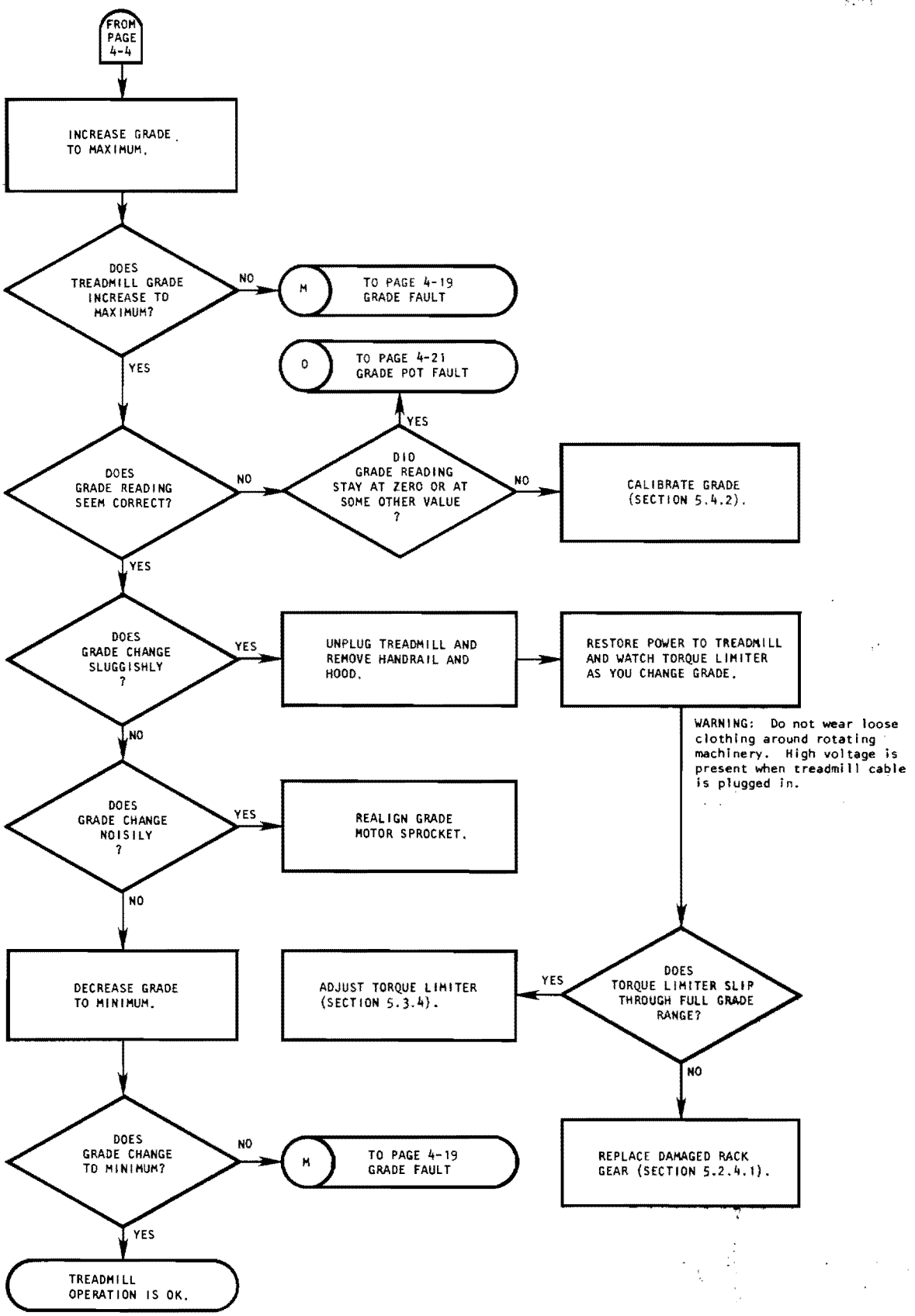
CAUTION

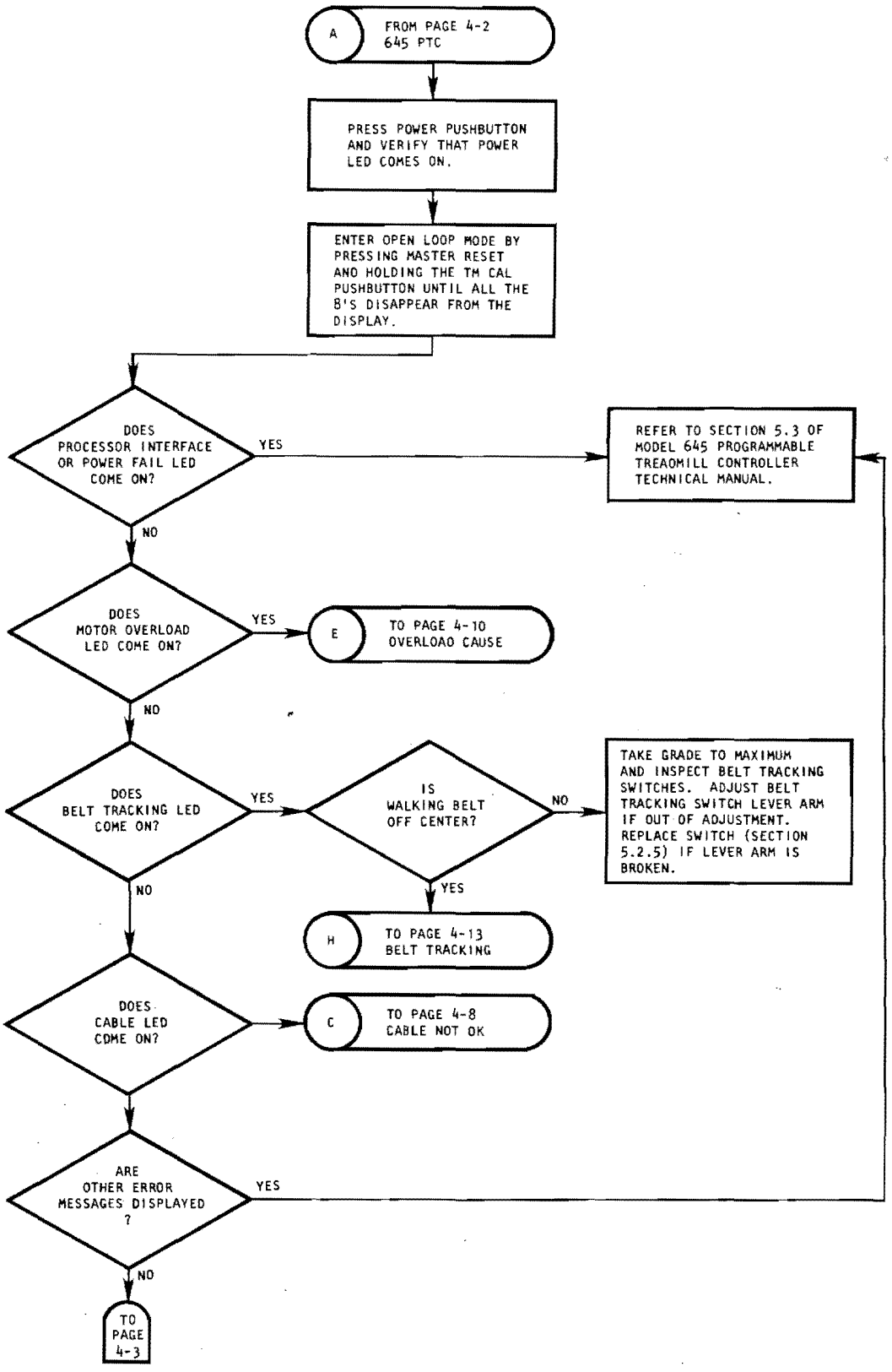
Treadmill users are advised that an autotransformer should not be used to increase 115 Vac to 230 Vac to run the treadmill. Consult your local licensed electrician to correct the voltage at your facility.

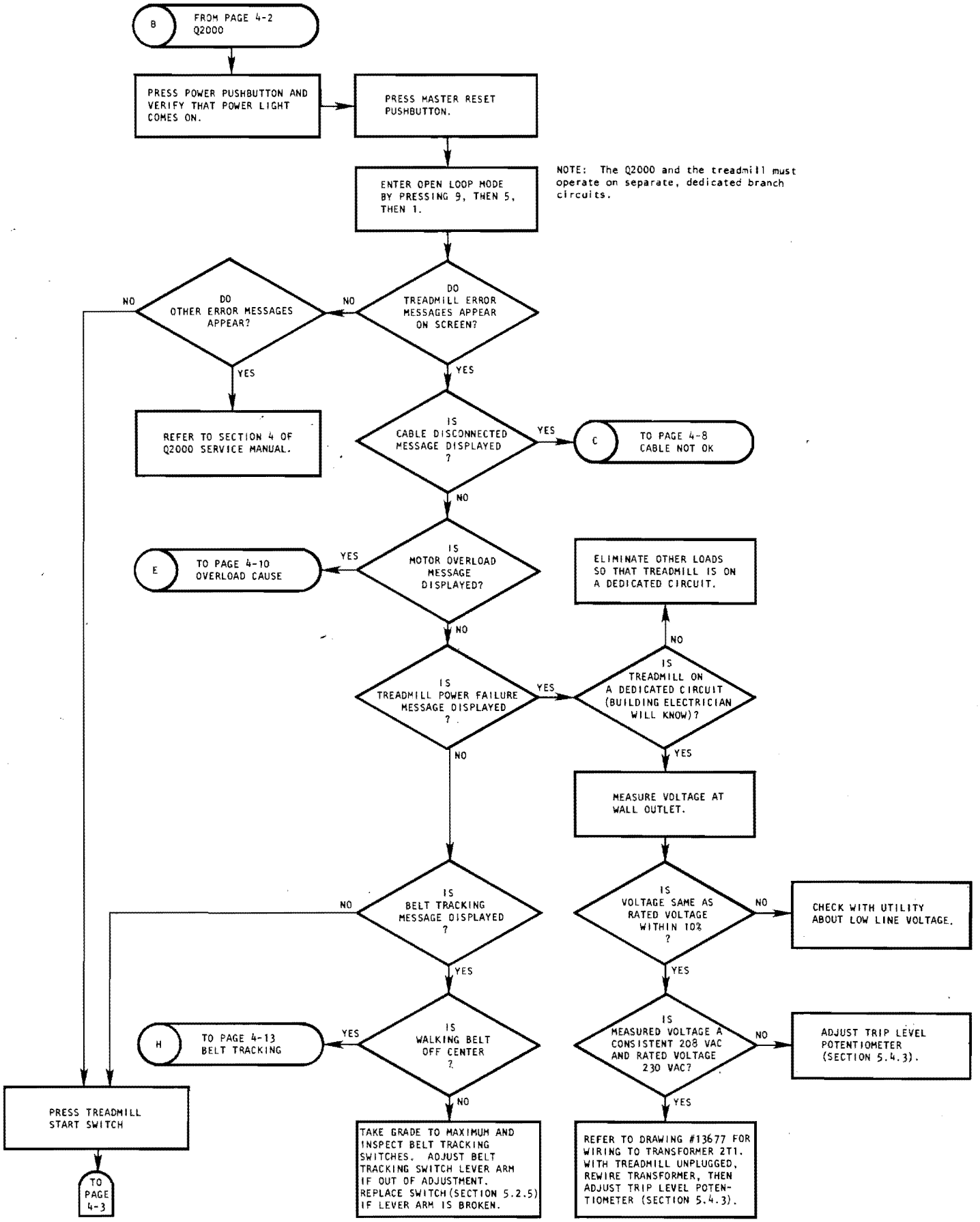

START
POWER CORD PLUGGED IN?
NO
PLUG IN POWER CORD.
CONTROL CABLE PLUGGED IN?
NO
PLUG IN CONTROL CABLE.
MODEL 645 PROGRAMMABLE TREADMILL CONTROLLER USED WITH TREADMILL?
NO
QUINTON'S TREADMILL CONTROLLER USED WITH TREADMILL?
NO
Q2000 STRESS TEST MONITOR USED WITH TREADMILL?
YES
B
TO PAGE 4-7 Q2000
YES
A
TO PAGE 4-6 645 PTC
YES
IS CABLE CONN LED ON?
NO
CHECK BUILDING CIRCUIT BREAKER.
CIRCUIT BREAKER OK?
YES
NO
RESET BUILDING CIRCUIT BREAKER.
PRESS RUN PUSHBUTTON.
NO
IS RUN PUSHBUTTON DEPRESSED?
C
TO PAGE 4-8 CABLE NOT OK
YES
DID LO VOLTS LED COME ON?
NO
YES
IS TREADMILL ON A DEDICATED CIRCUIT (BUILDING ELECTRICIAN WILL KNOW)?
NO
ELIMINATE OTHER LOADS SO THAT TREADMILL IS ON A DEDICATED CIRCUIT.
YES
CHECK WITH UTILITY ABOUT LOW LINE VOLTAGE.
NO
IS VOLTAGE SAME AS RATED VOLTAGE, WITHIN 10%?
MEASURE VOLTAGE AT WALL OUTLET.
YES
IS MEASURED VOLTAGE A CONSISTENT 208 VAC AND RATED VOLTAGE 230 VAC?
NO
ADJUST TRIP LEVEL POTENTIOMETER (SECTION 5.4.3).
REFER TO DRAWING #13677 FOR WIRING TO TRANSFORMER 2T1. WITH TREADMILL UNPLUGGED, REWIRE TRANSFORMER, THEN ADJUST TRIP LEVEL POTENTIOMETER 2A1R23 (SECTION 5.4.3).
YES
TO PAGE 4-3

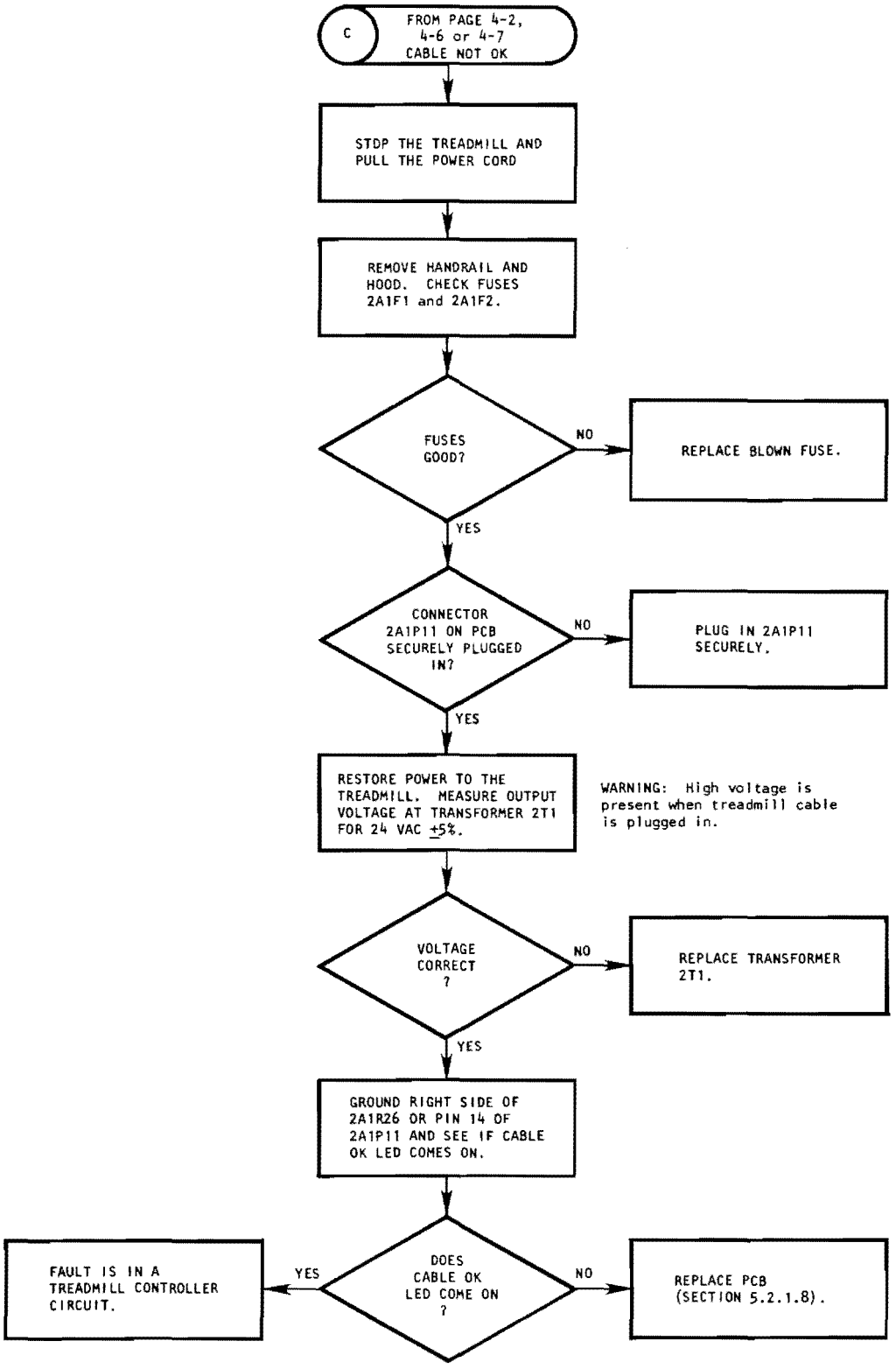

FROM PAGE 4-2
IS WALKING BELT MOVING?
NO
CAN YOU HEAR DRIVE MOTOR RUNNING?
NO
ENSURE NO ONE IS ON THE WALKING BELT.
YES
D
TO PAGE 4-9 MECHANICAL FAULT
IS MOTOR OVERLOAD LED ON?
YES
E
TO PAGE 4-10 OVERLOAD CAUSE
NO
F
TO PAGE 4-11 MOTOR LED FAULT
YES
DOES WALKING BELT TRACK IN CENTER OF TREADMILL?
NO
STOP WALKING BELT.
H
TO PAGE 4-13 BELT TRACKING
YES
DOES WALKING BELT SLIP OR MOVE UNSTEADILY?
YES
DOES FRONT PULLEY SLOW OR STOP WITH FOOTFALL?
NO
ADJUST WALKING BELT TENSION (SECTION 3.2.1 OF Q55/Q65 OPERATOR MANUAL).
YES
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD. INSPECT V-BELTS. ALIGN OR REPLACE (SECTION 5.2.2.5) V-BELT.
NO
IS TREADMILL OPERATION QUIET?
NO
I
TO PAGE 4-14 NOISY OPERATION
YES
IF TREADMILL IS NOT AT MINIMUM SPEED AND GRADE, REDUCE SPEED AND GRADE TO MINIMUM.
TO PAGE 4-4

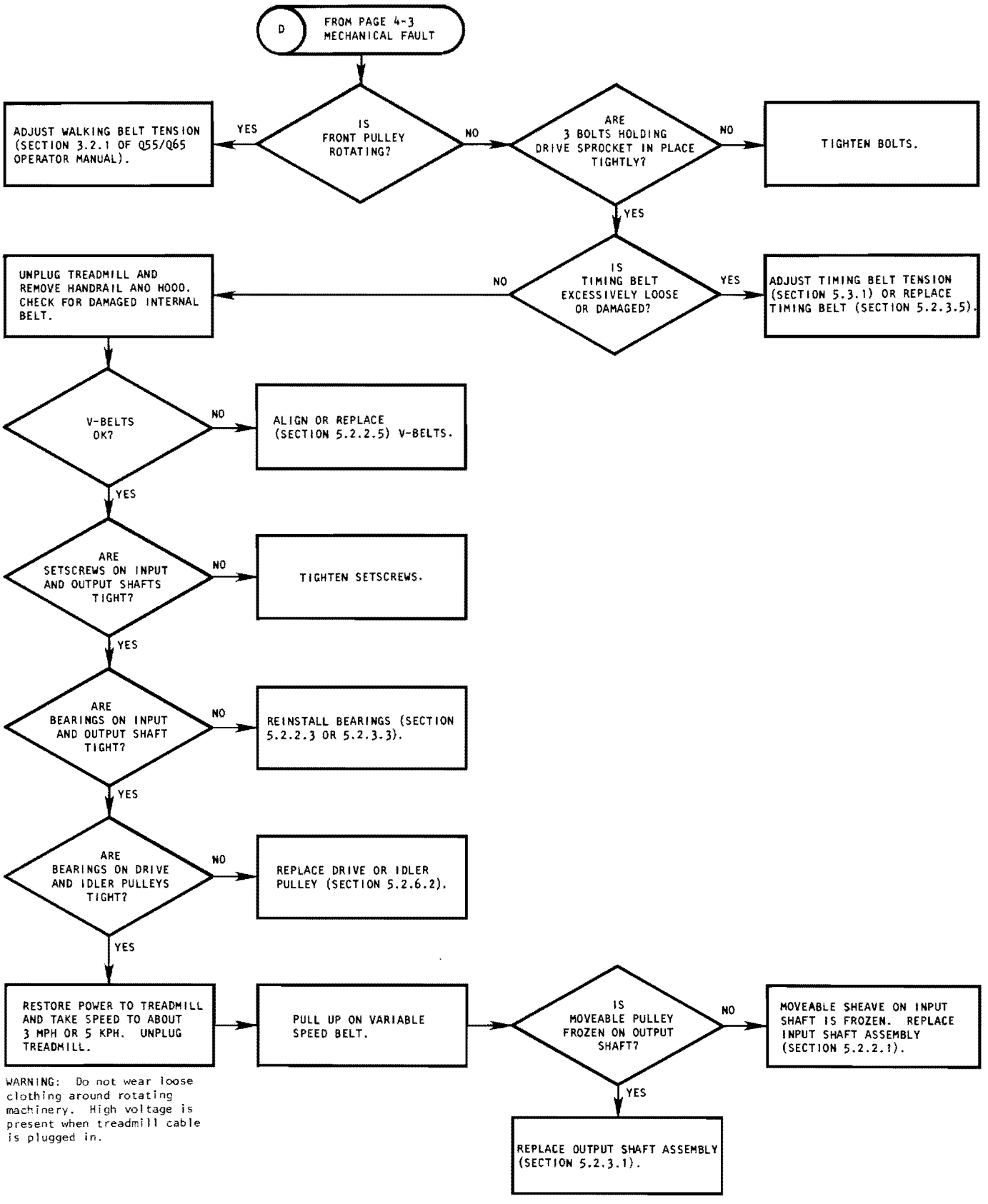

FROM PAGE 4-3
IS TREADMILL GRADE PHYSICALLY AT ZERO?
NO
YES
IS TREADMILL AT MINIMUM SPEED?
NO
YES
INCREASE SPEED TO MAXIMUM.
DOES TREADMILL SPEED INCREASE NORMALLY?
NO
YES
DOES SPEED READING SEEM CORRECT?
NO
YES
DECREASE SPEED TO MINIMUM.
DOES TREADMILL SPEED DECREASE NORMALLY?
NO
YES
DOES SPEED READING SEEM CORRECT?
NO
YES
TO PAGE 4-5
DOES SPEED INCREASE AT ALL?
NO
YES
J
TO PAGE 4-15 SPEED FAULT
DOES SPEED INCREASE TO MAXIMUM?
NO
YES
ADJUST SETSCREWS ON SPEED CHANGE YOKE (SECTION 5.3.3).
UNPLUG TREADMILL, REMOVE HANDRAIL AND HOOD AND INSPECT SPEED CHANGE MOTOR AND SPINDLE ASSEMBLIES FOR LOOSE PARTS OR DAMAGE.
DID SPEED READING STAY AT ZERO?
YES
L
TO PAGE 4-17 TACHOMETER FAULT
NO
CALIBRATE SPEED (SECTION 5.4.1).
J
TO PAGE 4-15 SPEED FAULT
DOES SPEED DECREASE AT ALL?
NO
YES
DOES SPEED DECREASE TO MINIMUM?
YES
NO

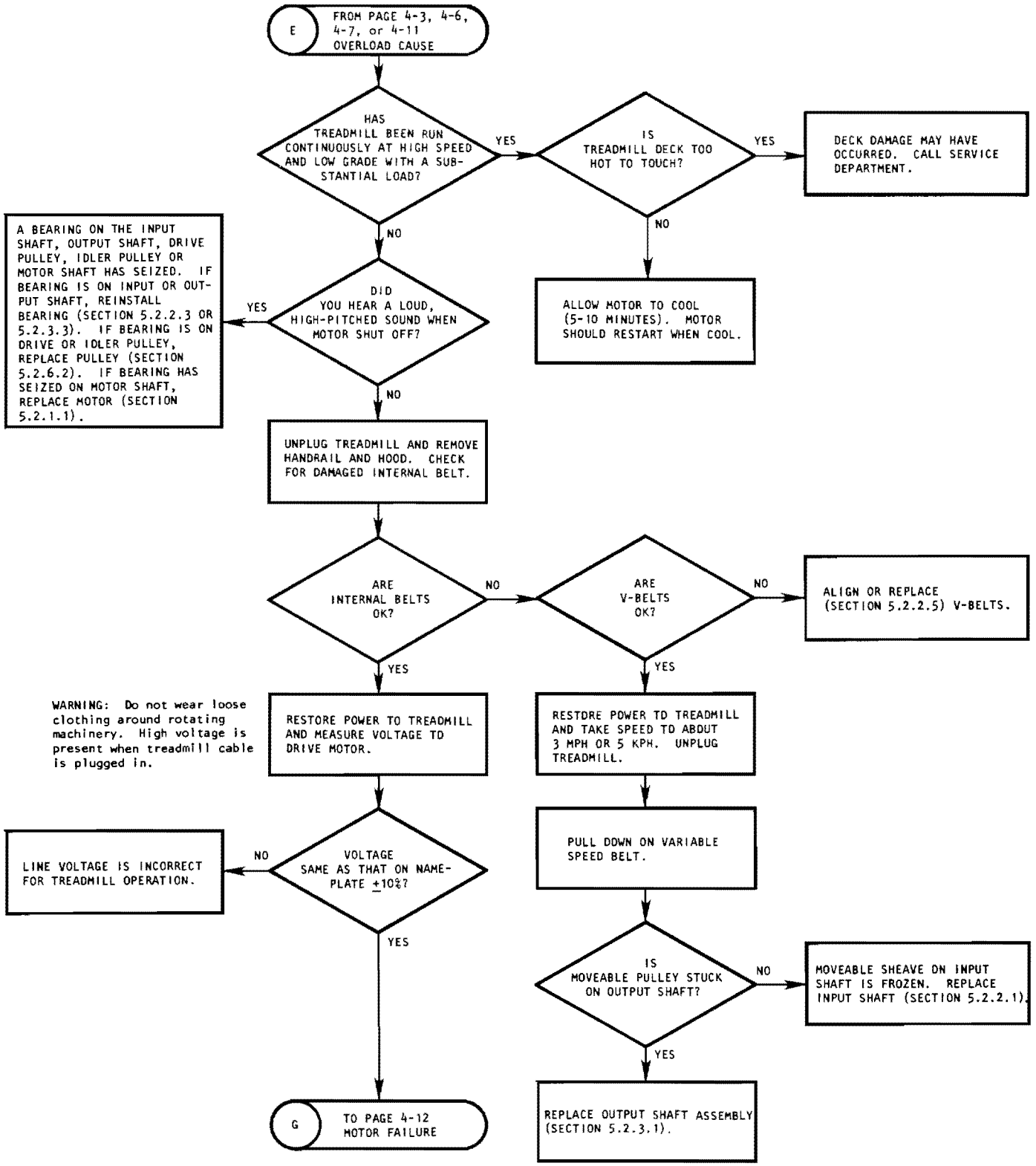

FROM PAGE 4-4
INCREASE GRADE TO MAXIMUM.
DOES TREADMILL GRADE INCREASE TO MAXIMUM?
NO
M
TO PAGE 4-19 GRADE FAULT
YES
O
TO PAGE 4-21 GRADE POT FAULT
DOES GRADE READING SEEM CORRECT?
NO
DID GRADE READING STAY AT ZERO OR AT SOME OTHER VALUE ?
YES
NO
CALIBRATE GRADE (SECTION 5.4.2).
YES
DOES GRADE CHANGE SLUGGISHLY ?
YES
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD.
RESTORE POWER TO TREADMILL AND WATCH TORQUE LIMITER AS YOU CHANGE GRADE.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
NO
DOES GRADE CHANGE NOISILY ?
YES
REALIGN GRADE MOTOR SPROCKET.
NO
DECREASE GRADE TO MINIMUM.
ADJUST TORQUE LIMITER (SECTION 5.3.4).
YES
DOES TORQUE LIMITER SLIP THROUGH FULL GRADE RANGE?
NO
DOES GRADE CHANGE TO MINIMUM?
NO
M
TO PAGE 4-19 GRADE FAULT
REPLACE DAMAGED RACK GEAR (SECTION 5.2.4.1).
YES
TREADMILL OPERATION IS OK.

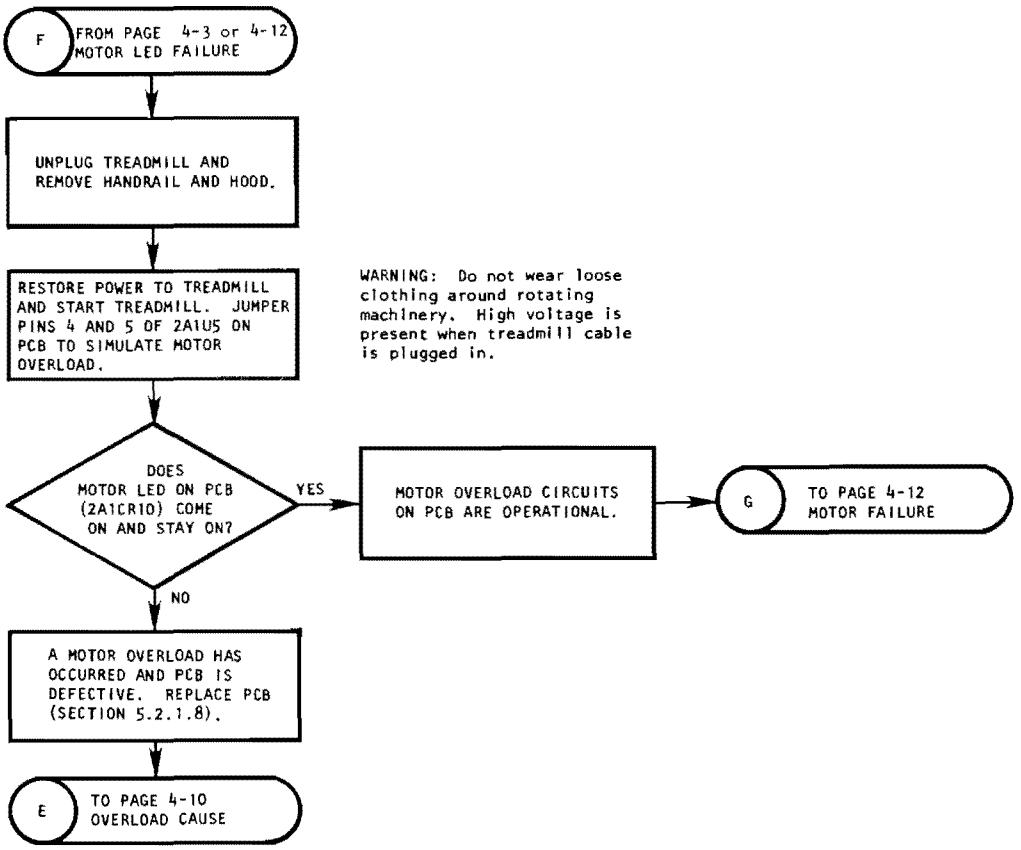

A
FROM PAGE 4-2
645 PTC
PRESS POWER PUSHBUTTON AND VERIFY THAT POWER LED COMES ON.
ENTER OPEN LOOP MODE BY PRESSING MASTER RESET AND HOLDING THE TM CAL PUSHBUTTON UNTIL ALL THE 8'S DISAPPEAR FROM THE DISPLAY.
DOES PROCESSOR INTERFACE OR POWER FAIL LED COME ON?
YES
REFER TO SECTION 5.3 OF MODEL 645 PROGRAMMABLE TREADMILL CONTROLLER TECHNICAL MANUAL.
NO
DOES MOTOR OVERLOAD LED COME ON?
YES
E
TO PAGE 4-10
OVERLOAD CAUSE
NO
DOES BELT TRACKING LED COME ON?
YES
IS WALKING BELT OFF CENTER?
NO
TAKE GRADE TO MAXIMUM AND INSPECT BELT TRACKING SWITCHES. ADJUST BELT TRACKING SWITCH LEVER ARM IF OUT OF ADJUSTMENT. REPLACE SWITCH (SECTION 5.2.5) IF LEVER ARM IS BROKEN.
YES
H
TO PAGE 4-13
BELT TRACKING
NO
DOES CABLE LED COME ON?
C
TO PAGE 4-8
CABLE NOT OK
ARE OTHER ERROR MESSAGES DISPLAYED ?
YES
NO
TO PAGE 4-3

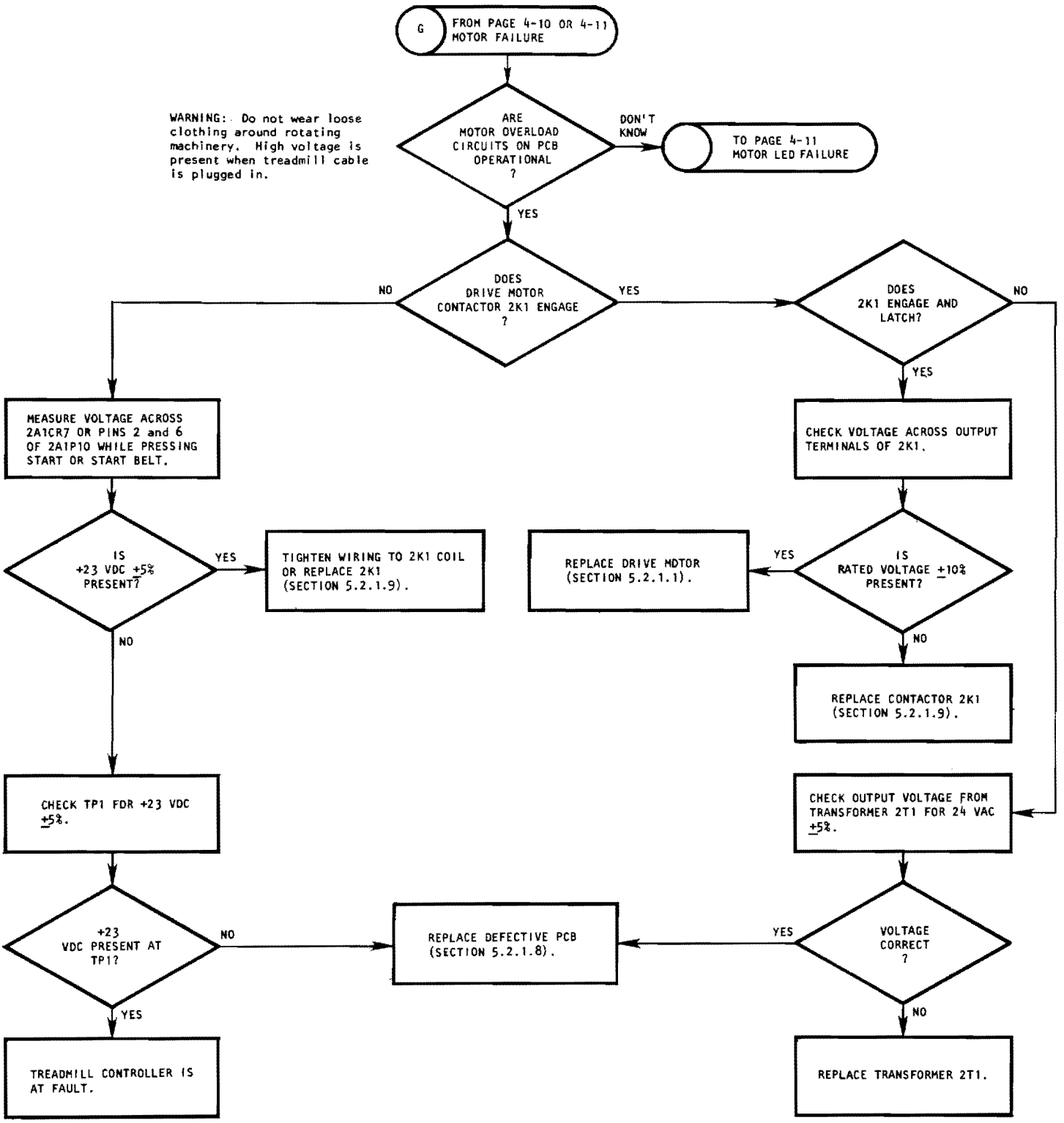

B
FROM PAGE 4-2 Q2000
PRESS POWER PUSHBUTTON AND VERIFY THAT POWER LIGHT COMES ON.
PRESS MASTER RESET PUSHBUTTON.
ENTER OPEN LOOP MODE BY PRESSING 9, THEN 5, THEN 1.
NOTE: The Q2000 and the treadmill must operate on separate, dedicated branch circuits.
DO TREADMILL ERROR MESSAGES APPEAR ON SCREEN?
NO
YES
DO OTHER ERROR MESSAGES APPEAR?
NO
YES
REFER TO SECTION 4 OF Q2000 SERVICE MANUAL.
IS CABLE DISCONNECTED MESSAGE DISPLAYED ?
YES
C
TO PAGE 4-8 CABLE NOT OK
NO
IS MOTOR OVERLOAD MESSAGE DISPLAYED?
YES
E
TO PAGE 4-10 OVERLOAD CAUSE
NO
IS TREADMILL POWER FAILURE MESSAGE DISPLAYED ?
YES
IS TREADMILL ON A DEDICATED CIRCUIT (BUILDING ELECTRICIAN WILL KNOW)?
NO
ELIMINATE OTHER LOADS SO THAT TREADMILL IS ON A DEDICATED CIRCUIT.
YES
MEASURE VOLTAGE AT WALL OUTLET.
NO
IS BELT TRACKING MESSAGE DISPLAYED ?
NO
YES
IS VOLTAGE SAME AS RATED VOLTAGE WITHIN 10% ?
NO
CHECK WITH UTILITY ABOUT LOW LINE VOLTAGE.
YES
H
TO PAGE 4-13 BELT TRACKING
YES
IS WALKING BELT OFF CENTER ?
NO
IS MEASURED VOLTAGE A CONSISTENT 208 VAC AND RATED VOLTAGE 230 VAC?
NO
ADJUST TRIP LEVEL POTENTIOMETER (SECTION 5.4.3).
YES
TAKE GRADE TO MAXIMUM AND INSPECT BELT TRACKING SWITCHES. ADJUST BELT TRACKING SWITCH LEVER ARM IF OUT OF ADJUSTMENT. REPLACE SWITCH (SECTION 5.2.5) IF LEVER ARM IS BROKEN.
REFER TO DRAWING #13677 FOR WIRING TO TRANSFORMER 2T1. WITH TREADMILL UNPLUGGED, REWIRE TRANSFORMER, THEN ADJUST TRIP LEVEL POTENTIOMETER (SECTION 5.4.3).
PRESS TREADMILL START SWITCH
TO PAGE 4-3

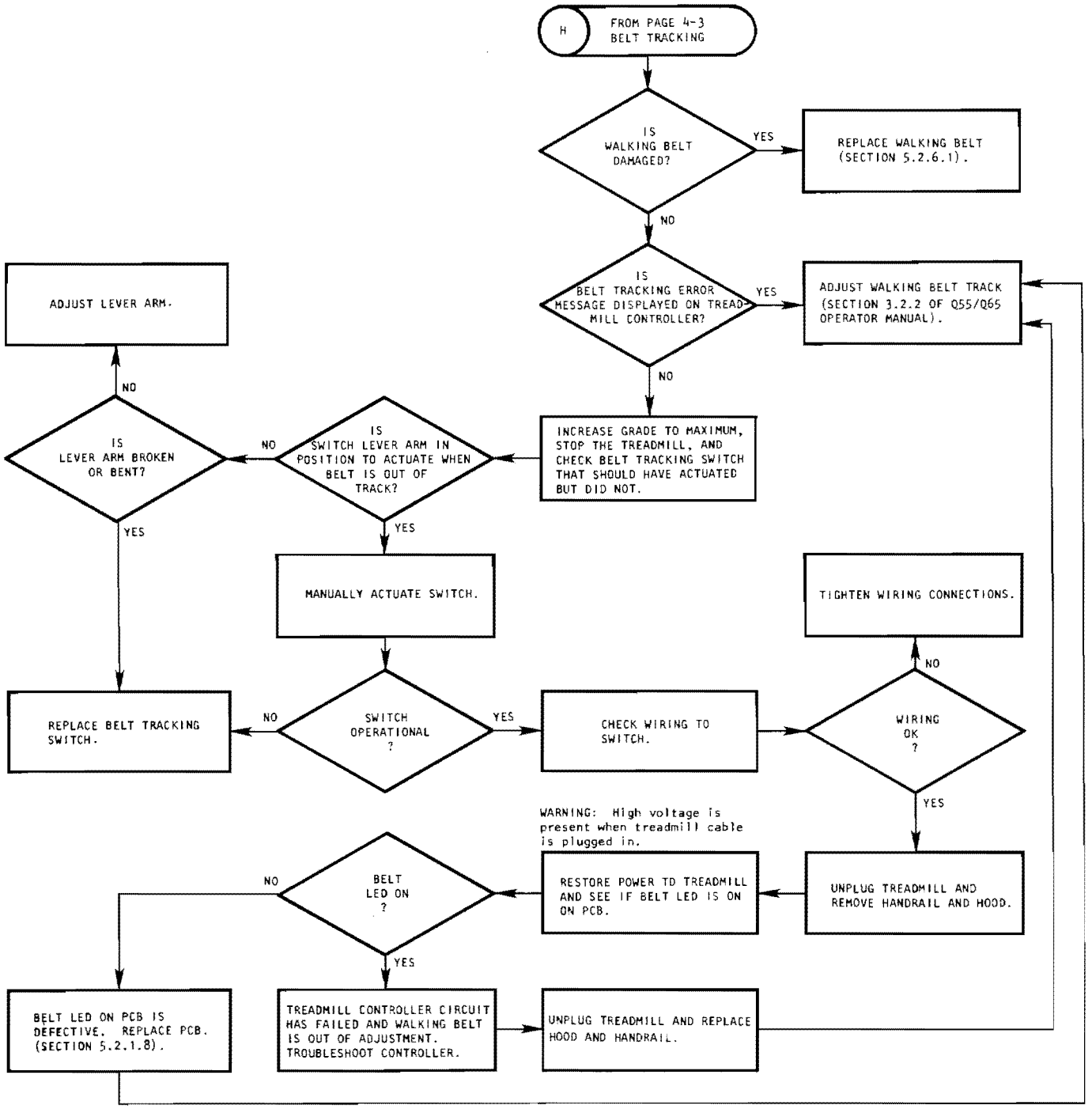

C
FROM PAGE 4-2, 4-6 or 4-7 CABLE NOT OK
STOP THE TREADMILL AND PULL THE POWER CORD
REMOVE HANDRAIL AND HOOD. CHECK FUSES 2A1F1 and 2A1F2.
FUSES GOOD?
NO
REPLACE BLOWN FUSE.
YES
CONNECTOR 2A1P11 ON PCB SECURELY PLUGGED IN?
NO
PLUG IN 2A1P11 SECURELY.
YES
RESTORE POWER TO THE TREADMILL. MEASURE OUTPUT VOLTAGE AT TRANSFORMER 2T1 FOR 24 VAC ±5%.
WARNING: High voltage is present when treadmill cable is plugged in.
VOLTAGE CORRECT ?
NO
REPLACE TRANSFORMER 2T1.
YES
GROUND RIGHT SIDE OF 2A1R26 OR PIN 14 OF 2A1P11 AND SEE IF CABLE OK LED COMES ON.
DOES CABLE OK LED COME ON ?
YES
FAULT IS IN A TREADMILL CONTROLLER CIRCUIT.
NO
REPLACE PCB (SECTION 5.2.1.8).

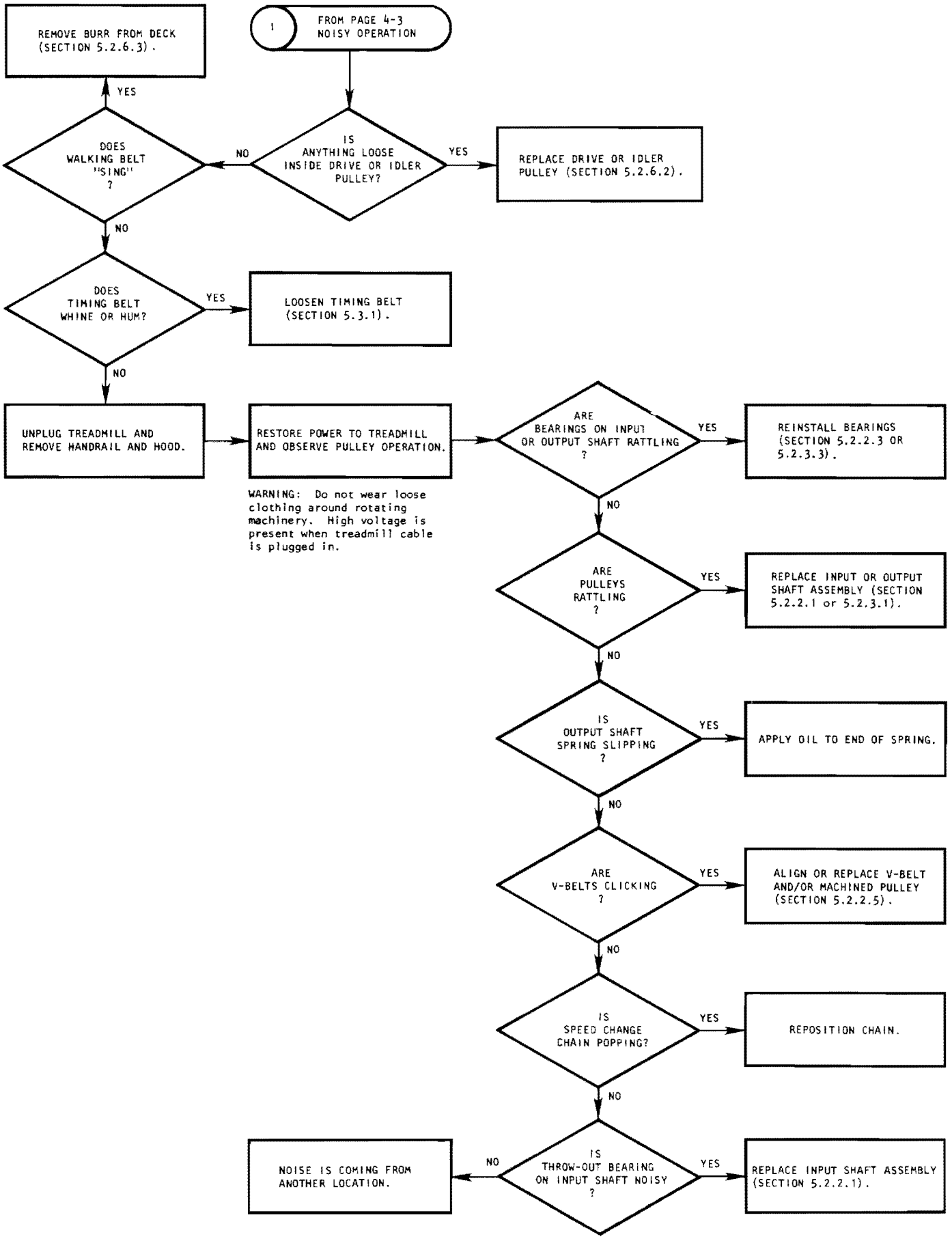

D
FROM PAGE 4-3
MECHANICAL FAULT
IS FRONT PULLEY ROTATING?
YES
ADJUST WALKING BELT TENSION (SECTION 3.2.1 OF Q55/Q65 OPERATOR MANUAL).
NO
ARE 3 BOLTS HOLDING DRIVE SPROCKET IN PLACE TIGHTLY?
NO
TIGHTEN BOLTS.
YES
IS TIMING BELT EXCESSIVELY LOOSE OR DAMAGED?
YES
ADJUST TIMING BELT TENSION (SECTION 5.3.1) OR REPLACE TIMING BELT (SECTION 5.2.3.5).
NO
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD. CHECK FOR DAMAGED INTERNAL BELT.
V-BELTS OK?
NO
ALIGN OR REPLACE (SECTION 5.2.2.5) V-BELTS.
YES
ARE SETSCREWS ON INPUT AND OUTPUT SHAFTS TIGHT?
NO
TIGHTEN SETSCREWS.
YES
ARE BEARINGS ON INPUT AND OUTPUT SHAFT TIGHT?
NO
REINSTALL BEARINGS (SECTION 5.2.2.3 OR 5.2.3.3).
YES
ARE BEARINGS ON DRIVE AND IDLER PULLEYS TIGHT?
NO
REPLACE DRIVE OR IDLER PULLEY (SECTION 5.2.6.2).
YES
RESTORE POWER TO TREADMILL AND TAKE SPEED TO ABOUT 3 MPH OR 5 KPH. UNPLUG TREADMILL.
PULL UP ON VARIABLE SPEED BELT.
IS MOVEABLE PULLEY FROZEN ON OUTPUT SHAFT?
NO
MOVEABLE SHEAVE ON INPUT SHAFT IS FROZEN. REPLACE INPUT SHAFT ASSEMBLY (SECTION 5.2.2.1).
YES
REPLACE OUTPUT SHAFT ASSEMBLY (SECTION 5.2.3.1).
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.

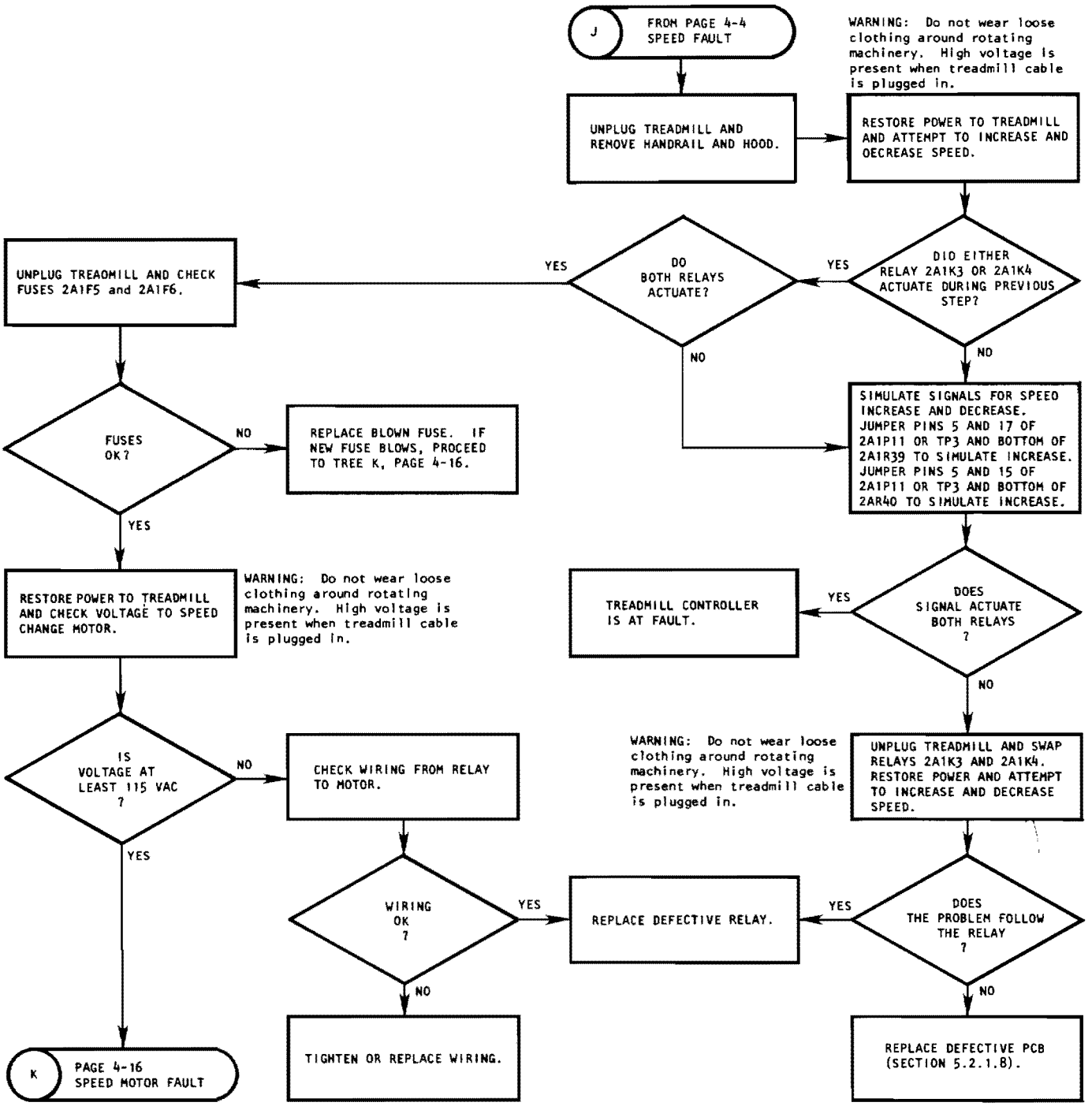

E
FROM PAGE 4-3, 4-6, 4-7, or 4-11 OVERLOAD CAUSE
HAS TREADMILL BEEN RUN CONTINUOUSLY AT HIGH SPEED AND LOW GRADE WITH A SUBSTANTIAL LOAD?
YES
IS TREADMILL DECK TOO HOT TO TOUCH?
YES
DECK DAMAGE MAY HAVE OCCURRED. CALL SERVICE DEPARTMENT.
NO
ALLOW MOTOR TO COOL (5-10 MINUTES). MOTOR SHOULD RESTART WHEN COOL.
NO
DID YOU HEAR A LOUD, HIGH-PITCHED SOUND WHEN MOTOR SHUT OFF?
YES
A BEARING ON THE INPUT SHAFT, OUTPUT SHAFT, DRIVE PULLEY, IDLER PULLEY OR MOTOR SHAFT HAS SEIZED. IF BEARING IS ON INPUT OR OUTPUT SHAFT, REINSTALL BEARING (SECTION 5.2.2.3 OR 5.2.3.3). IF BEARING IS ON DRIVE OR IDLER PULLEY, REPLACE PULLEY (SECTION 5.2.6.2). IF BEARING HAS SEIZED ON MOTOR SHAFT, REPLACE MOTOR (SECTION 5.2.1.1).
NO
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD. CHECK FOR DAMAGED INTERNAL BELT.
ARE INTERNAL BELTS OK?
NO
ARE V-BELTS OK?
NO
ALIGN OR REPLACE (SECTION 5.2.2.5) V-BELTS.
YES
YES
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
RESTORE POWER TO TREADMILL AND MEASURE VOLTAGE TO DRIVE MOTOR.
RESTORE POWER TO TREADMILL AND TAKE SPEED TO ABOUT 3 MPH OR 5 KPH. UNPLUG TREADMILL.
PULL DOWN ON VARIABLE SPEED BELT.
VOLTAGE SAME AS THAT ON NAMEPLATE ±10%?
NO
LINE VOLTAGE IS INCORRECT FOR TREADMILL OPERATION.
YES
IS MOVEABLE PULLEY STUCK ON OUTPUT SHAFT?
NO
MOVEABLE SHEAVE ON INPUT SHAFT IS FROZEN. REPLACE INPUT SHAFT (SECTION 5.2.2.1).
YES
REPLACE OUTPUT SHAFT ASSEMBLY (SECTION 5.2.3.1).
G
TO PAGE 4-12 MOTOR FAILURE

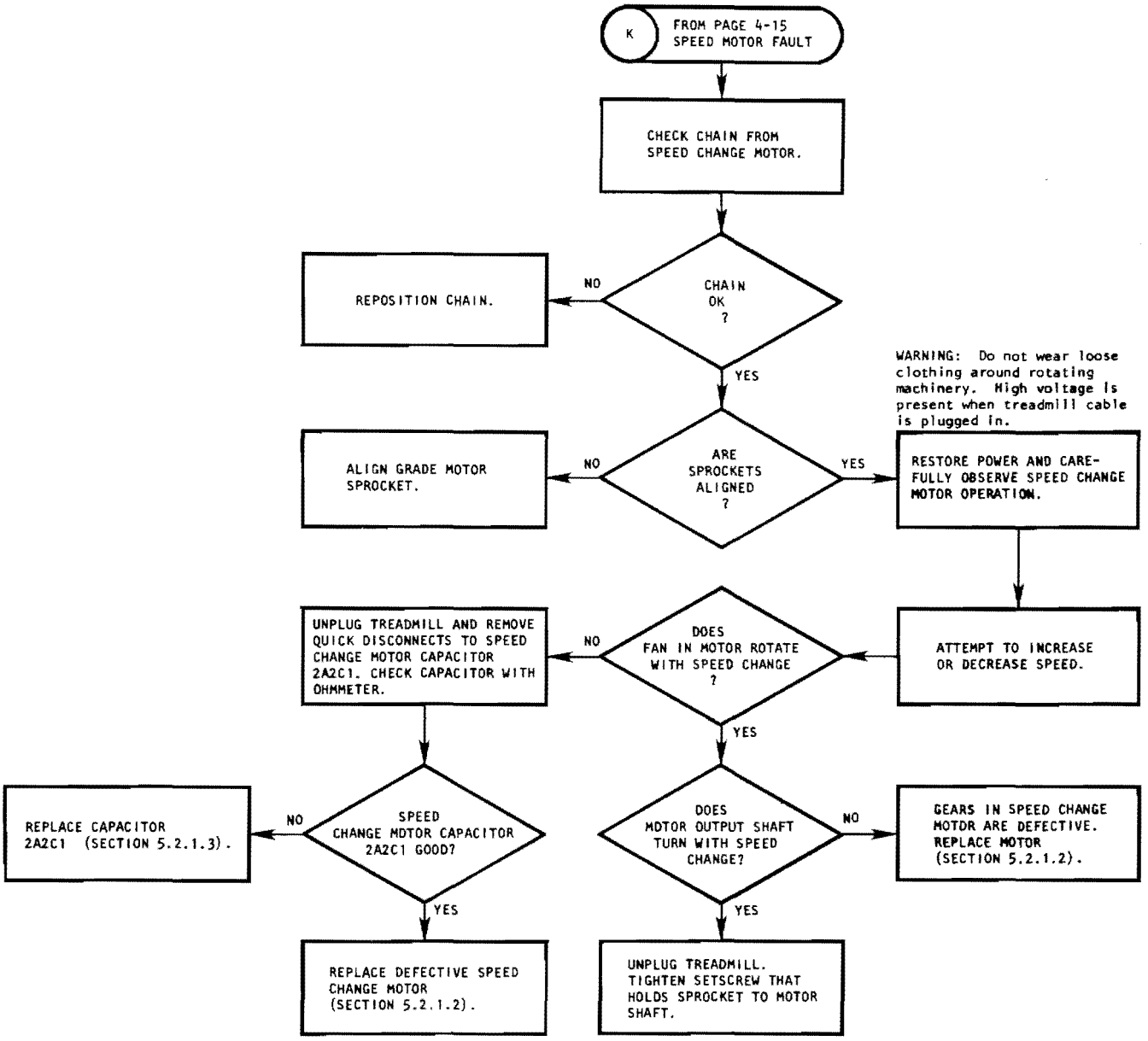

F
FROM PAGE 4-3 or 4-12
MOTOR LED FAILURE
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD.
RESTORE POWER TO TREADMILL AND START TREADMILL. JUMPER PINS 4 AND 5 OF 2A1U5 ON PCB TO SIMULATE MOTOR OVERLOAD.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
DOES MOTOR LED ON PCB (2A1CR10) COME ON AND STAY ON?
YES
MOTOR OVERLOAD CIRCUITS ON PCB ARE OPERATIONAL.
G
TO PAGE 4-12
MOTOR FAILURE
NO
A MOTOR OVERLOAD HAS OCCURRED AND PCB IS DEFECTIVE. REPLACE PCB (SECTION 5.2.1.8).
E
TO PAGE 4-10
OVERLOAD CAUSE

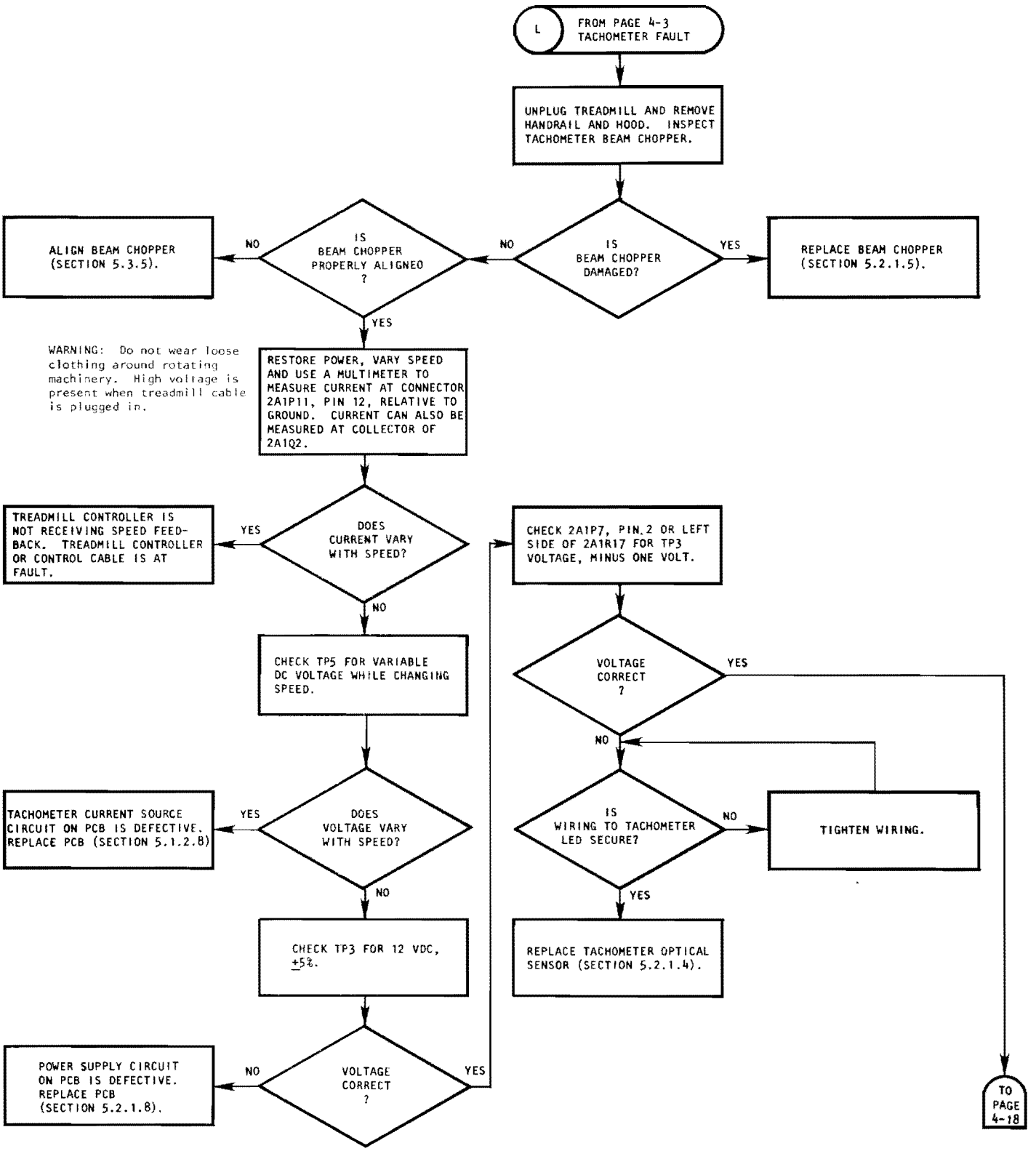

G
FROM PAGE 4-10 OR 4-11
MOTOR FAILURE
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
ARE MOTOR OVERLOAD CIRCUITS ON PCB OPERATIONAL ?
DON'T KNOW
TO PAGE 4-11
MOTOR LED FAILURE
YES
DOES DRIVE MOTOR CONTACTOR 2K1 ENGAGE ?
NO
YES
DOES 2K1 ENGAGE AND LATCH?
NO
YES
MEASURE VOLTAGE ACROSS 2A1CR7 OR PINS 2 and 6 OF 2A1P10 WHILE PRESSING START OR START BELT.
CHECK VOLTAGE ACROSS OUTPUT TERMINALS OF 2K1.
IS +23 VDC ±5% PRESENT?
YES
TIGHTEN WIRING TO 2K1 COIL OR REPLACE 2K1 (SECTION 5.2.1.9).
REPLACE DRIVE MOTOR (SECTION 5.2.1.1).
YES
IS RATED VOLTAGE ±10% PRESENT?
NO
REPLACE CONTACTOR 2K1 (SECTION 5.2.1.9).
NO
CHECK TP1 FOR +23 VDC ±5%.
CHECK OUTPUT VOLTAGE FROM TRANSFORMER 2T1 FOR 24 VAC ±5%.
+23 VDC PRESENT AT TP1?
NO
REPLACE DEFECTIVE PCB (SECTION 5.2.1.8).
YES
VOLTAGE CORRECT ?
YES
NO
TREADMILL CONTROLLER IS AT FAULT.
REPLACE TRANSFORMER 2T1.


H
FROM PAGE 4-3
BELT TRACKING
IS WALKING BELT DAMAGED?
YES
REPLACE WALKING BELT (SECTION 5.2.6.1).
NO
IS BELT TRACKING ERROR MESSAGE DISPLAYED ON TREADMILL CONTROLLER?
YES
ADJUST WALKING BELT TRACK (SECTION 3.2.2 OF Q55/Q65 OPERATOR MANUAL).
NO
INCREASE GRADE TO MAXIMUM, STOP THE TREADMILL, AND CHECK BELT TRACKING SWITCH THAT SHOULD HAVE ACTUATED BUT DID NOT.
IS SWITCH LEVER ARM IN POSITION TO ACTUATE WHEN BELT IS OUT OF TRACK?
NO
YES
IS LEVER ARM BROKEN OR BENT?
NO
YES
ADJUST LEVER ARM.
MANUALLY ACTUATE SWITCH.
SWITCH OPERATIONAL ?
NO
YES
REPLACE BELT TRACKING SWITCH.
CHECK WIRING TO SWITCH.
WIRING OK ?
NO
YES
TIGHTEN WIRING CONNECTIONS.
WARNING: High voltage is present when treadmill cable is plugged in.
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD.
RESTORE POWER TO TREADMILL AND SEE IF BELT LED IS ON ON PCB.
BELT LED ON ?
NO
YES
BELT LED ON PCB IS DEFECTIVE. REPLACE PCB. (SECTION 5.2.1.8).
TREADMILL CONTROLLER CIRCUIT HAS FAILED AND WALKING BELT IS OUT OF ADJUSTMENT. TROUBLESHOOT CONTROLLER.
UNPLUG TREADMILL AND REPLACE HOOD AND HANDRAIL.


1
FROM PAGE 4-3
NOISY OPERATION
IS ANYTHING LOOSE INSIDE DRIVE OR IDLER PULLEY?
YES
REPLACE DRIVE OR IDLER PULLEY (SECTION 5.2.6.2).
NO
DOES WALKING BELT "SING" ?
YES
REMOVE BURR FROM DECK (SECTION 5.2.6.3).
NO
DOES TIMING BELT WHINE OR HUM?
YES
LOOSEN TIMING BELT (SECTION 5.3.1).
NO
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD.
RESTORE POWER TO TREADMILL AND OBSERVE PULLEY OPERATION.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
ARE BEARINGS ON INPUT OR OUTPUT SHAFT RATTLING ?
YES
REINSTALL BEARINGS (SECTION 5.2.2.3 OR 5.2.3.3).
NO
ARE PULLEYS RATTLING ?
YES
REPLACE INPUT OR OUTPUT SHAFT ASSEMBLY (SECTION 5.2.2.1 or 5.2.3.1).
NO
IS OUTPUT SHAFT SPRING SLIPPING ?
YES
APPLY OIL TO END OF SPRING.
NO
ARE V-BELTS CLICKING ?
YES
ALIGN OR REPLACE V-BELT AND/OR MACHINED PULLEY (SECTION 5.2.2.5).
NO
IS SPEED CHANGE CHAIN POPPING?
YES
REPOSITION CHAIN.
NO
IS THROW-OUT BEARING ON INPUT SHAFT NOISY ?
YES
REPLACE INPUT SHAFT ASSEMBLY (SECTION 5.2.2.1).
NO
NOISE IS COMING FROM ANOTHER LOCATION.


J
FROM PAGE 4-4
SPEED FAULT
UNPLUG TREADMILL AND
REMOVE HANDRAIL AND HOOD.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
RESTORE POWER TO TREADMILL AND ATTEMPT TO INCREASE AND OECREASE SPEED.
DID EITHER RELAY 2A1K3 OR 2A1K4 ACTUATE DURING PREVIOUS STEP?
YES
NO
DO BOTH RELAYS ACTUATE?
YES
NO
UNPLUG TREADMILL AND CHECK FUSES 2A1F5 and 2A1F6.
SIMULATE SIGNALS FOR SPEED INCREASE AND DECREASE. JUMPER PINS 5 AND 17 OF 2A1P11 OR TP3 AND BOTTOM OF 2A1R39 TO SIMULATE INCREASE. JUMPER PINS 5 AND 15 OF 2A1P11 OR TP3 AND BOTTOM OF 2AR40 TO SIMULATE INCREASE.
FUSES OK?
NO
REPLACE BLOWN FUSE. IF NEW FUSE BLOWS, PROCEED TO TREE K, PAGE 4-16.
YES
DOES SIGNAL ACTUATE BOTH RELAYS ?
YES
TREADMILL CONTROLLER IS AT FAULT.
NO
RESTORE POWER TO TREADMILL AND CHECK VOLTAGE TO SPEED CHANGE MOTOR.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
UNPLUG TREADMILL AND SWAP RELAYS 2A1K3 AND 2A1K4. RESTORE POWER AND ATTEMPT TO INCREASE AND DECREASE SPEED.
IS VOLTAGE AT LEAST 115 VAC ?
NO
CHECK WIRING FROM RELAY TO MOTOR.
YES
DOES THE PROBLEM FOLLOW THE RELAY ?
YES
REPLACE DEFECTIVE RELAY.
WIRING OK ?
YES
NO
NO
K
PAGE 4-16
SPEED MOTOR FAULT
TIGHTEN OR REPLACE WIRING.
REPLACE DEFECTIVE PCB (SECTION 5.2.1.8).


K
FROM PAGE 4-15
SPEED MOTOR FAULT
CHECK CHAIN FROM SPEED CHANGE MOTOR.
CHAIN OK ?
NO
REPOSITION CHAIN.
YES
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
ARE SPROCKETS ALIGNED ?
NO
ALIGN GRADE MOTOR SPROCKET.
YES
RESTORE POWER AND CAREFULLY OBSERVE SPEED CHANGE MOTOR OPERATION.
ATTEMPT TO INCREASE OR DECREASE SPEED.
DOES FAN IN MOTOR ROTATE WITH SPEED CHANGE ?
NO
UNPLUG TREADMILL AND REMOVE QUICK DISCONNECTS TO SPEED CHANGE MOTOR CAPACITOR 2A2C1. CHECK CAPACITOR WITH OHMMETER.
YES
SPEED CHANGE MOTOR CAPACITOR 2A2C1 GOOD?
NO
REPLACE CAPACITOR 2A2C1 (SECTION 5.2.1.3).
YES
REPLACE DEFECTIVE SPEED CHANGE MOTOR (SECTION 5.2.1.2).
DOES MOTOR OUTPUT SHAFT TURN WITH SPEED CHANGE?
NO
GEARS IN SPEED CHANGE MOTOR ARE DEFECTIVE. REPLACE MOTOR (SECTION 5.2.1.2).
YES
UNPLUG TREADMILL. TIGHTEN SETSCREW THAT HOLDS SPROCKET TO MOTOR SHAFT.


L
FROM PAGE 4-3
TACHOMETER FAULT
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD. INSPECT TACHOMETER BEAM CHOPPER.
IS BEAM CHOPPER DAMAGED?
NO
YES
REPLACE BEAM CHOPPER (SECTION 5.2.1.5).
IS BEAM CHOPPER PROPERLY ALIGNED ?
NO
ALIGN BEAM CHOPPER (SECTION 5.3.5).
YES
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
RESTORE POWER, VARY SPEED AND USE A MULTIMETER TO MEASURE CURRENT AT CONNECTOR 2A1P11, PIN 12, RELATIVE TO GROUND. CURRENT CAN ALSO BE MEASURED AT COLLECTOR OF 2A1Q2.
DOES CURRENT VARY WITH SPEED?
YES
TREADMILL CONTROLLER IS NOT RECEIVING SPEED FEEDBACK. TREADMILL CONTROLLER OR CONTROL CABLE IS AT FAULT.
NO
CHECK TP5 FOR VARIABLE DC VOLTAGE WHILE CHANGING SPEED.
DOES VOLTAGE VARY WITH SPEED?
YES
TACHOMETER CURRENT SOURCE CIRCUIT ON PCB IS DEFECTIVE. REPLACE PCB (SECTION 5.1.2.8)
NO
CHECK TP3 FOR 12 VDC, ±5%.
VOLTAGE CORRECT ?
NO
POWER SUPPLY CIRCUIT ON PCB IS DEFECTIVE. REPLACE PCB (SECTION 5.2.1.8).
YES
CHECK 2A1P7, PIN 2 OR LEFT SIDE OF 2A1R17 FOR TP3 VOLTAGE, MINUS ONE VOLT.
VOLTAGE CORRECT ?
YES
NO
IS WIRING TO TACHOMETER LED SECURE?
NO
TIGHTEN WIRING.
YES
REPLACE TACHOMETER OPTICAL SENSOR (SECTION 5.2.1.4).
TO PAGE 4-18

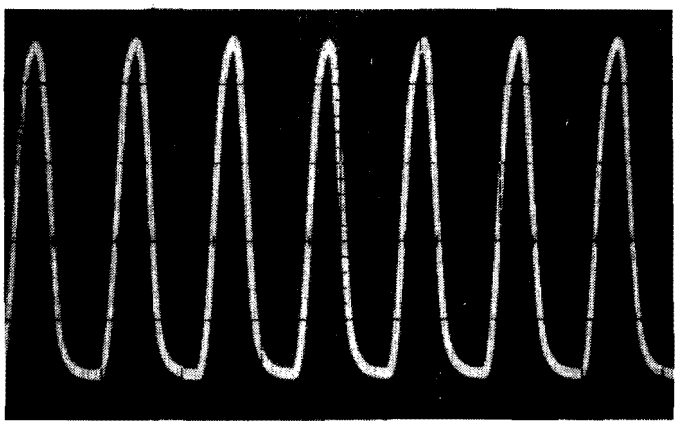
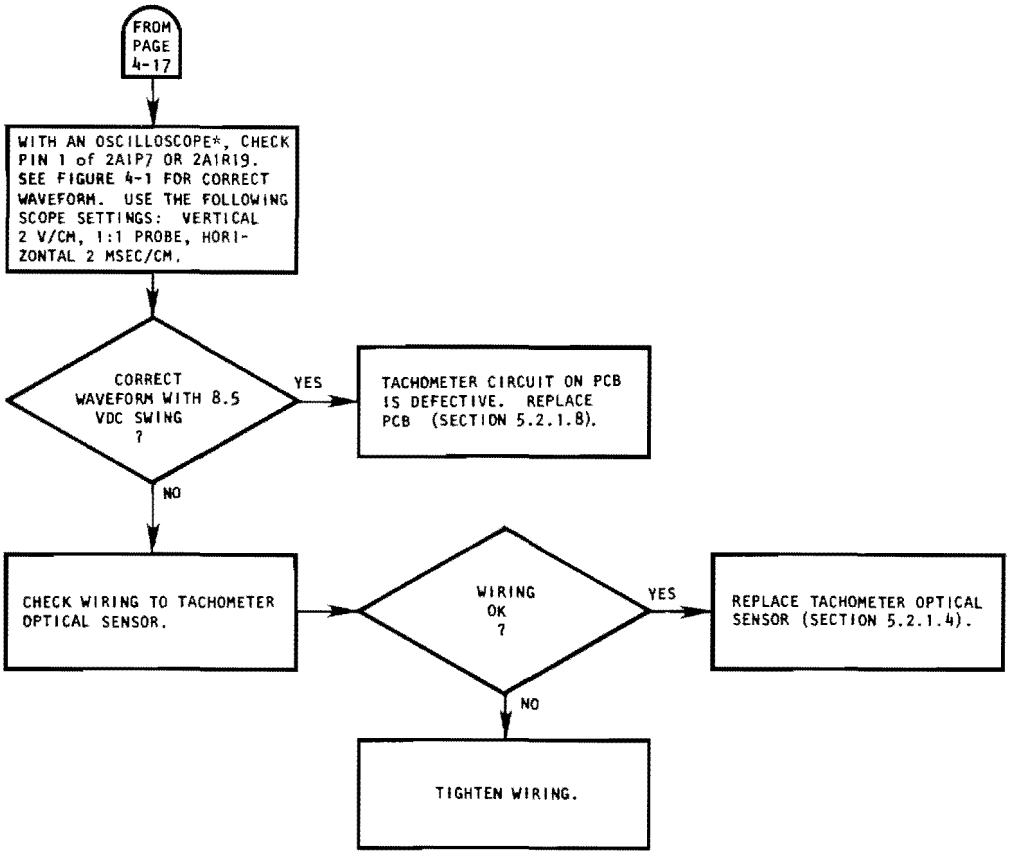
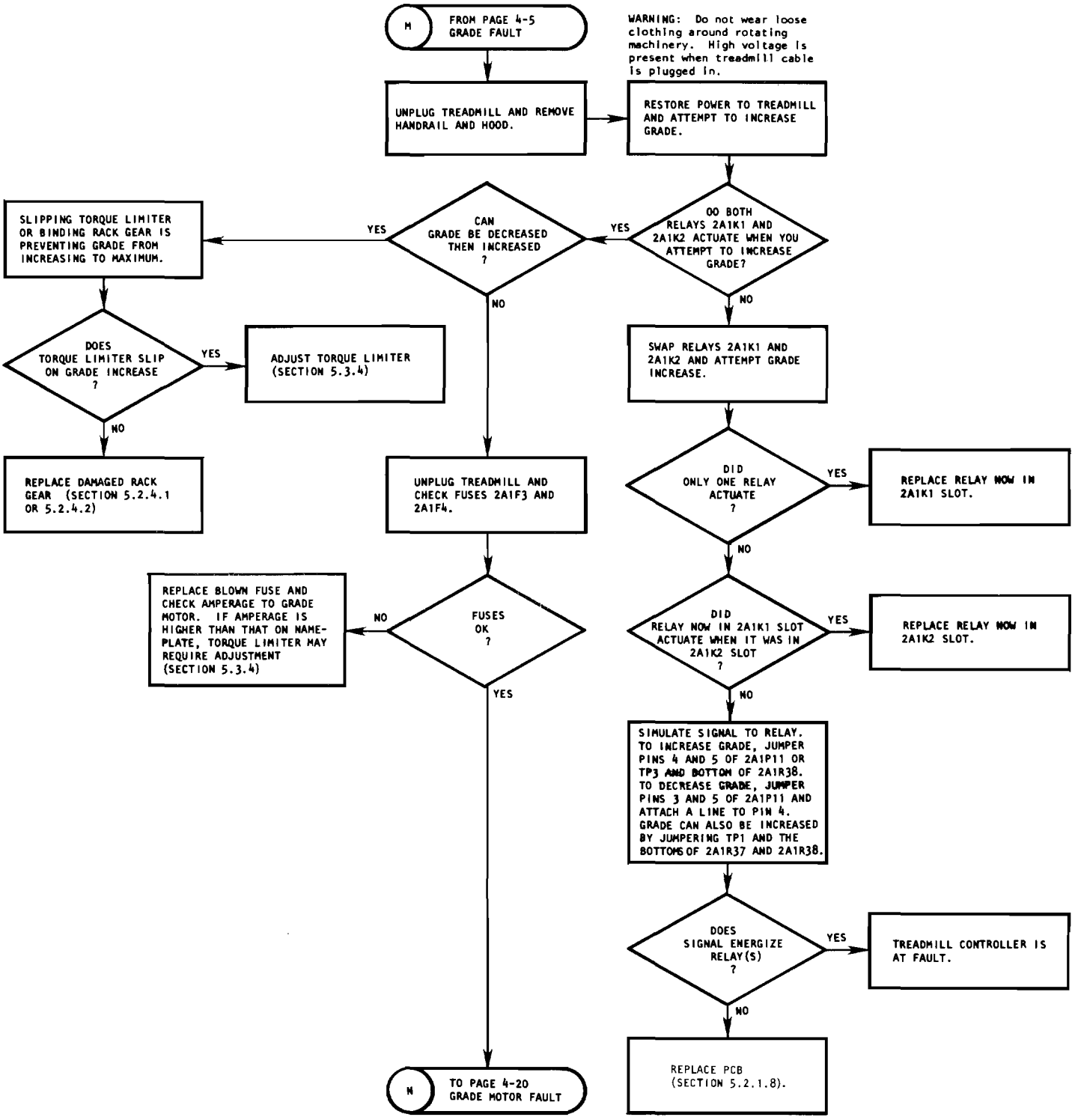
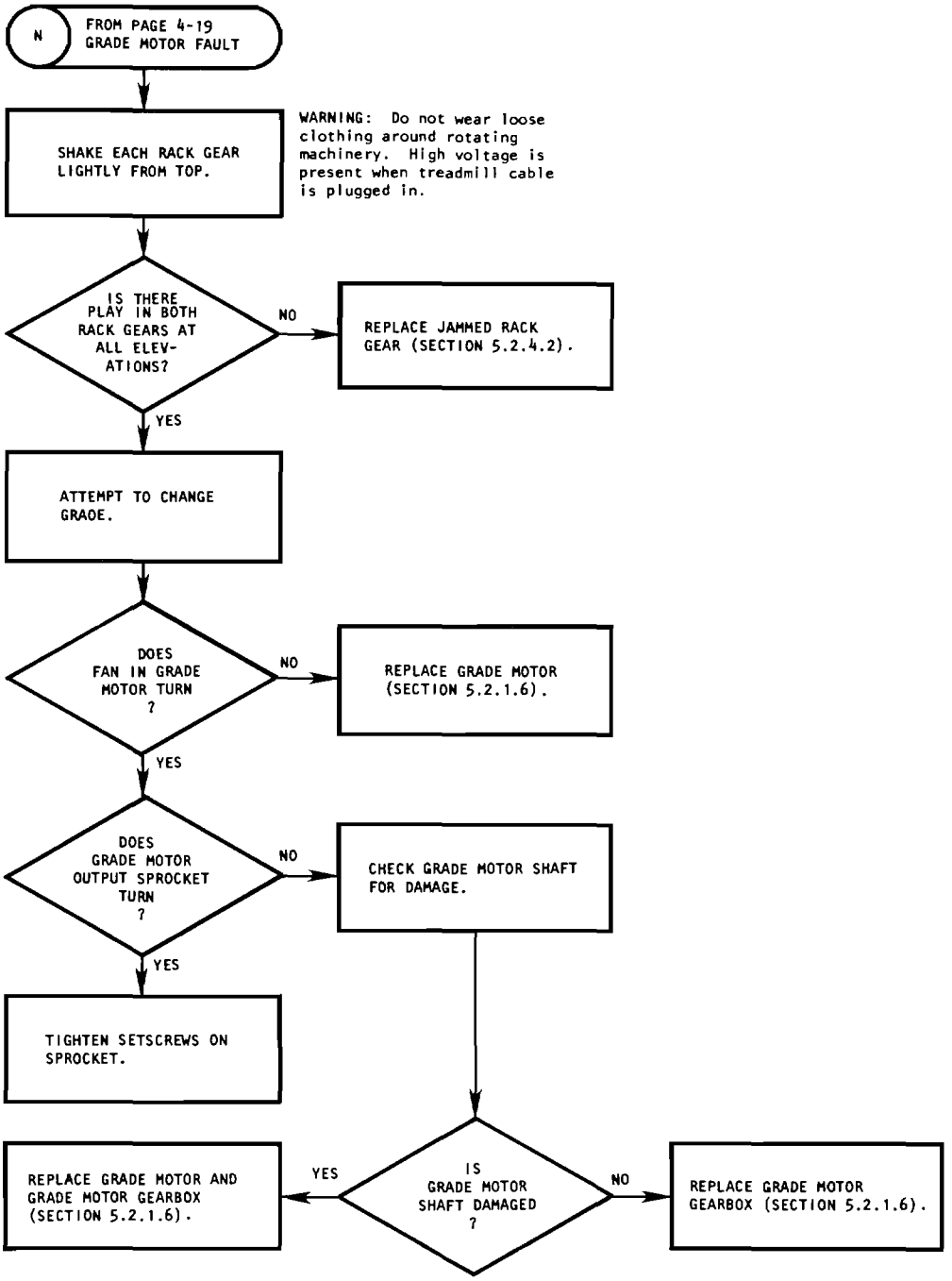


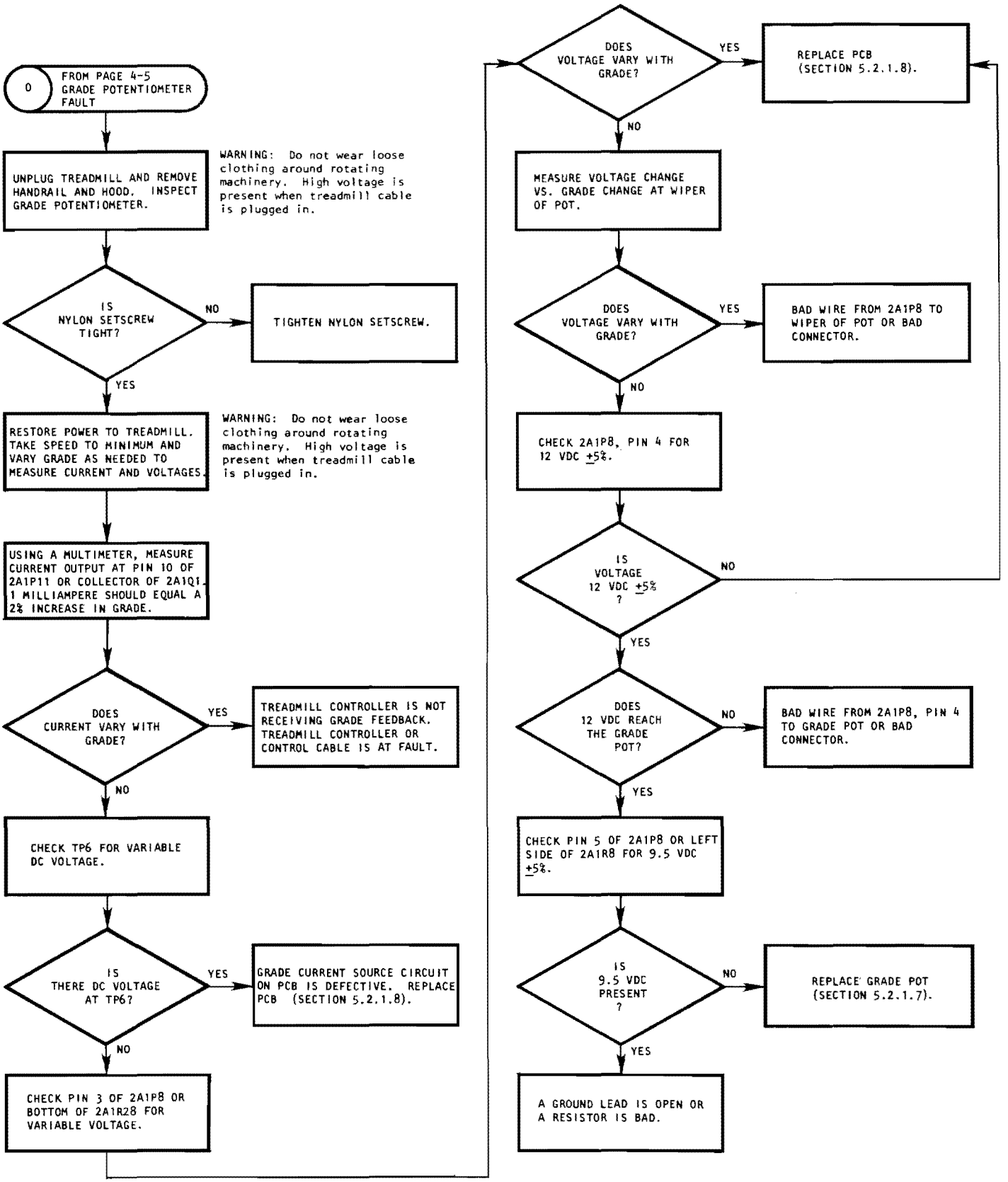
Figure 4-1 Waveform at 2A1P7, Pin 1



*If an oscilloscope is not available to display waveform, a multimeter that responds only to ac voltage on an ac range may be used. If 3-4 Vac is present at pin 1 of 2A1P7 or top of 2A1R29, the waveform is probably correct.


M
FROM PAGE 4-5
GRADE FAULT
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD.
RESTORE POWER TO TREADMILL AND ATTEMPT TO INCREASE GRADE.
DO BOTH RELAYS 2A1K1 AND 2A1K2 ACTUATE WHEN YOU ATTEMPT TO INCREASE GRADE?
YES
NO
CAN GRADE BE DECREASED THEN INCREASED ?
YES
SLIPPING TORQUE LIMITER OR BINDING RACK GEAR IS PREVENTING GRADE FROM INCREASING TO MAXIMUM.
DOES TORQUE LIMITER SLIP ON GRADE INCREASE ?
YES
ADJUST TORQUE LIMITER (SECTION 5.3.4)
NO
REPLACE DAMAGED RACK GEAR (SECTION 5.2.4.1 OR 5.2.4.2)
NO
SWAP RELAYS 2A1K1 AND 2A1K2 AND ATTEMPT GRADE INCREASE.
DID ONLY ONE RELAY ACTUATE ?
YES
REPLACE RELAY NOW IN 2A1K1 SLOT.
NO
DID RELAY NOW IN 2A1K1 SLOT ACTUATE WHEN IT WAS IN 2A1K2 SLOT ?
YES
REPLACE RELAY NOW IN 2A1K2 SLOT.
NO
SIMULATE SIGNAL TO RELAY. TO INCREASE GRADE, JUMPER PINS 4 AND 5 OF 2A1P11 OR TP3 AND BOTTOM OF 2A1R38. TO DECREASE GRADE, JUMPER PINS 3 AND 5 OF 2A1P11 AND ATTACH A LINE TO PIN 4. GRADE CAN ALSO BE INCREASED BY JUMPERING TP1 AND THE BOTTOMS OF 2A1R37 AND 2A1R38.
DOES SIGNAL ENERGIZE RELAY(S) ?
YES
TREADMILL CONTROLLER IS AT FAULT.
NO
REPLACE PCB (SECTION 5.2.1.8).
UNPLUG TREADMILL AND CHECK FUSES 2A1F3 AND 2A1F4.
FUSES OK ?
NO
REPLACE BLOWN FUSE AND CHECK AMPERAGE TO GRADE MOTOR. IF AMPERAGE IS HIGHER THAN THAT ON NAMEPLATE, TORQUE LIMITER MAY REQUIRE ADJUSTMENT (SECTION 5.3.4)
YES
N
TO PAGE 4-20
GRADE MOTOR FAULT


N
FROM PAGE 4-19
GRADE MOTOR FAULT
SHAKE EACH RACK GEAR LIGHTLY FROM TOP.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
IS THERE PLAY IN BOTH RACK GEARS AT ALL ELEV-ATIONS?
NO
REPLACE JAMMED RACK GEAR (SECTION 5.2.4.2).
YES
ATTEMPT TO CHANGE GRAOE.
DOES FAN IN GRADE MOTOR TURN ?
NO
REPLACE GRADE MOTOR (SECTION 5.2.1.6).
YES
DOES GRADE MOTOR OUTPUT SPROCKET TURN ?
NO
CHECK GRADE MOTOR SHAFT FOR DAMAGE.
YES
TIGHTEN SETSCREWS ON SPROCKET.
IS GRADE MOTOR SHAFT DAMAGED ?
YES
REPLACE GRADE MOTOR AND GRADE MOTOR GEARBOX (SECTION 5.2.1.6).
NO
REPLACE GRADE MOTOR GEARBOX (SECTION 5.2.1.6).


D
FROM PAGE 4-5
GRADE POTENTIOMETER FAULT
UNPLUG TREADMILL AND REMOVE HANDRAIL AND HOOD. INSPECT GRADE POTENTIOMETER.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
IS NYLON SETSCREW TIGHT?
NO
TIGHTEN NYLON SETSCREW.
YES
RESTORE POWER TO TREADMILL. TAKE SPEED TO MINIMUM AND VARY GRADE AS NEEDED TO MEASURE CURRENT AND VOLTAGES.
WARNING: Do not wear loose clothing around rotating machinery. High voltage is present when treadmill cable is plugged in.
USING A MULTIMETER, MEASURE CURRENT OUTPUT AT PIN 10 OF 2A1P11 OR COLLECTOR OF 2A1Q1. 1 MILLIAMPERE SHOULD EQUAL A 2% INCREASE IN GRADE.
DOES CURRENT VARY WITH GRADE?
YES
TREADMILL CONTROLLER IS NOT RECEIVING GRADE FEEDBACK. TREADMILL CONTROLLER OR CONTROL CABLE IS AT FAULT.
NO
CHECK TP6 FOR VARIABLE DC VOLTAGE.
IS THERE DC VOLTAGE AT TP6?
YES
GRADE CURRENT SOURCE CIRCUIT ON PCB IS DEFECTIVE. REPLACE PCB (SECTION 5.2.1.8).
NO
CHECK PIN 3 OF 2A1P8 OR BOTTOM OF 2A1R28 FOR VARIABLE VOLTAGE.
DOES VOLTAGE VARY WITH GRADE?
YES
REPLACE PCB (SECTION 5.2.1.8).
NO
MEASURE VOLTAGE CHANGE VS. GRADE CHANGE AT WIPER OF POT.
DOES VOLTAGE VARY WITH GRADE?
YES
BAD WIRE FROM 2A1P8 TO WIPER OF POT OR BAD CONNECTOR.
NO
CHECK 2A1P8, PIN 4 FOR 12 VDC ±5%.
IS VOLTAGE 12 VDC ±5% ?
NO
YES
DOES 12 VDC REACH THE GRADE POT?
NO
BAD WIRE FROM 2A1P8, PIN 4 TO GRADE POT OR BAD CONNECTOR.
YES
CHECK PIN 5 OF 2A1P8 OR LEFT SIDE OF 2A1R8 FOR 9.5 VDC ±5%.
IS 9.5 VDC PRESENT ?
NO
REPLACE GRADE POT (SECTION 5.2.1.7).
YES
A GROUND LEAD IS OPEN OR A RESISTOR IS BAD.

SECTION 5.
CORRECTIVE MAINTENANCE

5.1 INTRODUCTION

The Q55/Q65 Medical Treadmill is designed to operate without scheduled maintenance. The procedures in this section are needed for corrective maintenance. Repair and replacement procedures include disassembly and reassembly procedures and are included in Section 5.2. Adjustment and alignment procedures are included in Section 5.3 and calibration procedures are included in Section 5.4. Section 5.5 is a post-maintenance test. Refer to Section 3 for theory of operation and Section 4 for troubleshooting procedures.

The following precautions should be observed whenever Q55/Q65 maintenance is performed:

1. Do not start the walking belt when anyone is on the belt.

2. If the treadmill shuts itself off for any reason, remove the patient from the walking belt immediately.

3. To prevent high voltage electrical shock, unplug the treadmill any time you remove the hood.

4. Do not wear loose clothing around rotating machinery.

5. High voltage is present when the treadmill hood is removed and the treadmill is plugged in.

5.2 DISASSEMBLY AND REASSEMBLY PROCEDURES

This section contains procedures for Q55/Q65 disassembly, component replacement and reassembly. Because PCB components are not field repairable, no procedures are included for PCB component repair or replacement.

Section 5.2.1 contains procedures to replace components that are easily accessible under the treadmill hood. Sections 5.2.2 and 5.2.3 contain procedures for input and output shaft disassembly and reassembly. Section 5.2.4 contains procedures to replace the rack gears and pinion shaft. Section 5.2.5 and 5.2.6 contain procedures to replace belt tracking switches, the walking belt, and drive and idler pulleys.

5.2.1 Access Under the Treadmill Hood

1. Unplug the treadmill from the wall outlet.

2. Remove the front handrail.

3. Remove the four bolts holding the hood to the treadmill.

4. Lift the hood straight up off the treadmill.

5.2.1.1 Drive Motor 2M2 Replacement

Drive motor 2M2 requires replacement when the internal thermal overload protector or motor start switch fails or when the motor burns out.

1. Take grade to approximately 10%.

2. Perform the procedure in Section 5.2.1.

3. Remove the cable ties to connector 2A1P6 and unplug connector 2A1P6.

4. Disconnect the two wires from contactor 2K1 by removing the screws.

5. Remove the four bolts that hold the motor in place.

6. Remove the drive motor.

7. Replace with a new drive motor in reverse order of disassembly. Refer to drawing number 0208-201 (Q55) or 0221-201 (Q65) for wire arrangement.

8. With the treadmill unplugged, replace the hood and handrail.

5.2.1.2 Speed Change Motor 2A2 Replacement

Speed change motor 2A2 requires replacement if the gears break or if the motor burns out.

1. Perform the procedure in Section 5.2.1.

2. Remove the cable ties from the quick disconnect to the speed change motor.

3. Disconnect the quick disconnect from the

black (power) lead at the motor and yellow and gray motor leads at speed change motor capacitor 2A2C1.

4. Remove the two bolts and washers that hold the speed change motor to the bracket.

5. Remove the speed change motor.

6. Replace the speed change motor in reverse order of disassembly. Refer to drawing number 0208-201 (Q55) or 0221-201 (Q65) for wire arrangement.

7. Restore power to the treadmill and calibrate speed (Section 5.4.1).

5.2.1.3 Speed Change Motor Capacitor 2A2C1 Replacement

Failure of the speed change motor capacitor 2A2C1 can cause the speed change motor to run sluggishly, blow a fuse (2A1F5 or 2A1F6) or prevent the motor from starting. A 4 microfarad capacitor is used on all 60 Hz models of the Q55/Q65 treadmill, and a 6 microfarad capacitor is used on all 50 Hz models of the Q55 treadmill.

1. Perform the procedure in Section 5.2.1.

2. Note the color and arrangement of the four wires to the capacitor.

3. Loosen the bolts holding the capacitor bracket in place.

4. Pull the capacitor straight up out of the bracket.

5. Replace with a new capacitor, reassembling in reverse order of disassembly. Refer to drawing number 0208-201 (Q55) or 0221-201 (Q65) for wire arrangement.

6. Tighten the capacitor in the bracket.

7. With the treadmill unplugged, replace the hood and handrail.

5.2.1.4 Tachometer 2A3 Optical Sensor Replacement

1. Perform the procedure in Section 5.2.1.

2. Remove the cable ties to connector 2A1P7 and unplug connector 2A1P7.

CAUTION

To prevent damage to the beam chopper, lift the tachometer bracket straight up to remove. Ensure that the tachometer optical sensor is securely mounted before the treadmill is operated.

3. Remove the two screws on top of the tachometer optical sensor and lift the tachometer bracket straight up.

4. Remove the two screws and spacers that hold the small circuit board in place.

5. Replace the two screws and spacers on the new small circuit board and the two screws on the new tachometer optical sensor.

6. Replace the wires to the tachometer assembly. Refer to drawing number 0208-201 (Q55) or 0221-201 (Q65) for wire arrangement.

7. Align the tachometer beam chopper (Section 5.3.5) and reconnect 2A1P7.

5.2.1.5 Tachometer Beam Chopper Replacement

1. Perform the procedure in Section 5.2.1.

2. Remove the two bolts that hold the tachometer optical sensor in place. Move the tachometer optical sensor out of the way.

3. Remove the beam chopper by removing the bolt and chopper wheel from the end of the output shaft.

4. Replace with a new beam chopper.

5. Replace the tachometer optical sensor on the bearing cap.

6. Align the tachometer beam chopper (Section 5.3.5).

5.2.1.6 Grade Motor 2M1 and/or Grade Motor Gearbox Replacement

1. Block the treadmill headframe securely to ensure that the treadmill will not drop when the grade motor or grade chain is removed.

2. Perform the procedure in Section 5.2.1.

3. Remove the cable ties between 2A1P3 and the grade motor connector box.

4. Unplug all connections to the PCB, including 2A1P11.

5. Remove the eight bolts holding the PCB to the PCB bracket.

6. Remove the four bolts holding the PCB bracket to the grade motor connector box.

7. If you are replacing the motor but not the gearbox, remove the four bolts holding the motor to the gearbox and lift the motor straight up.

8. If you are replacing only the gearbox or the motor and the gearbox, remove the four bolts holding the gearbox onto the headframe and lift the motor and gearbox straight up. The gearbox can then be removed from the motor by unbolting the four bolts.

9. If replacing only the motor, perform the following:

a. Replace the four bolts holding the motor to the gearbox, tightening the bolts evenly.

b. Replace the bolts removed in steps 5 and 6.

c. Replace all connections to the PCB.

d. Proceed to step 11.

10. If replacing the gearbox or the motor and the gearbox, perform the following.

a. Replace the four bolts holdling the gearbox to the headframe.

b. Replace the grade chain and inspect the tension on the grade chain. If there is more than approximately 1/8-inch play in the grade chain, loosen the four bolts holding the gearbox to the headframe and move the grade motor to correct the position of the chain. Tighten the four bolts when correct tension is achieved.

c. Replace the bolts removed in steps 5 and 6.

d. Replace all connections to the PCB.

11. Replace the wires to the grade motor. Refer to drawing number 0208-201 (Q55) or 221-201 (Q65) for wire arrangement.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

12. Restore power to the treadmill and test the operation of the new grade motor.

13. Recalibrate grade (Section 5.4.2).

5.2.1.7 Grade Potentiometer 2R1 Replacement

1. Perform the procedure in Section 5.2.1.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

2. With the hood removed, restore power to the treadmill and turn the grade motor on until the nylon setscrew on the sprocket is accessible.

3. Unplug the treadmill.

4. Release the nylon setscrew.

5. Hand turn the grade potentiometer 2R1 until the steel setscrew on the sprocket is visible.

6. Remove the steel setscrew.

7. Push the whole sprocket and chain assembly away from the grade potentiometer.

8. Remove the 1/2-inch brass nut and cable tie and the whole potentiometer will come off.

9. Note the color and arrangement of wires to the potentiometer.

10. Unsolder the three wires (black, brown and red) to the potentiometer.

11. Replace with a new potentiometer and reassemble in reverse order of disassembly. Refer to drawing number 0208-201 (Q55) or 0221-201 (Q65) for wire arrangement.

12. When the grade potentiometer, the wires and the setscrews are in place, calibrate the grade potentiometer using the procedure in Section 5.4.4.

13. Calibrate grade (Section 5.4.2).

5.2.1.8 Printed Circuit Board (PCB) 2A1 Replacement

1. Perform the procedure in Section 5.2.1.

2. Unplug all connectors the the PCB, including 2A1P11.

3. Push the wire assemblies behind the PCB bracket.

4. Remove the eight bolts that hold the PCB to the PCB bracket.

5. Replace with a new PCB and reassemble in reverse order of disassembly. Refer to drawing number 0208-201 (Q55) or 0221-201 (Q65) for wire arrangement.

6. Recalibrate speed (Section 5.4.1), grade (Section 5.4.2) and the trip level potentiometer (Section 5.4.3).

5.2.1.9 Drive Motor Contactor 2K1 Replacement

1. Perform the procedure in Section 5.2.1.

2. Note the color and arrangement of wires to contactor 2K1.

3. Remove the wires to the contactor, including two wires to the motor, two wires to the power supply, two wires to 2A1P10, and three wires to 2A1P2.

4. Replace with a new contactor and reconnect the wires. Refer to drawing number 0208-201 (Q55) or 0221-201 (Q65) for wire arrangement.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

5. Restore power to the treadmill and test the operation of the new drive motor contactor.

6. Unplug the treadmill and replace the hood and handrail.

5.2.2 Disassembly to Remove the Input Shaft Assembly

1. With the treadmill on, decrease speed to minimum.

2. Unplug the treadmill, remove the handrail, and lift the hood straight up off the treadmill.

CAUTION

Exercise caution to avoid damage to bearings and caps on the input shaft. If the input shaft is scarred or if the moveable sheave is frozen on the input shaft, the entire shaft assembly must be replaced.

NOTE

A replacement input shaft assembly can be obtained from Quinton Medical Company's Service Department.

3. Take a rope or flexible belt and put it around the variable speed belt. Pull straight up to loosen the belt. Figure 5-1 illustrates the loosening of the variable speed belt.

4. Remove the V-belts from the machined pulley.

5. With an air wrench or a ratchet wrench with a long extension, remove the four bolts that hold the bearing caps in place. Set the fan aside.

6. Lift the whole assembly straight up and forward, avoiding damage to the speed change motor, output shaft, or walking belt. Note that the bearing caps are upside-up if the narrow side is down.

5.2.2.1 Input Shaft Assembly Replacement

1. Perform the procedure in Section 5.2.2.

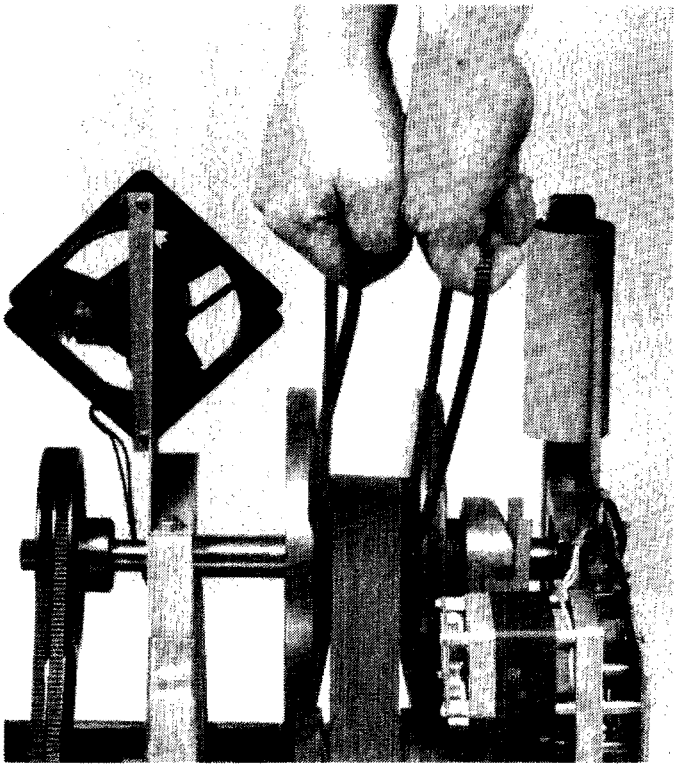


Figure 5-1 Loosening the Variable Speed Belt

2. Remove the machined pulley and key.

3. Align the speed change spindle assembly with the pin on the base of the headframe.

4. Replace the machined pulley on the shaft with the key in place.

5. Replace the bearing caps, narrow side down, and place the bolts in the holes without tightening them.

6. Install an undamaged input shaft assembly.

7. Pry open the output pulley slightly. Pull on the variable speed belt at the output end to snap the belt into place.

8. Tighten the bolts, installing the fan on the center bearing cap.

9. Snap the V-belts on and align the machined pulley with the pulley on the drive motor shaft. Use the setscrew on the machined pulley to make the adjustment.

10. Check the alignment of the input shaft. The variable speed belt should be parallel to the side of the headframe.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

11. Restore power to the treadmill and test the operation of the new input shaft. Verify that the treadmill operates through the full range of speeds.

12. Unplug the treadmill and replace the hood and handrail.

13. If using the Q2000 or the 645 PTC, perform treadmill calibration (Steps 1, 2 and 7 of Section 4.4 of the Q2000 Service Manual or Section 6.2 of the 645 PTC Technical Manual).

5.2.2.2 Replacement of a Seized Bearing on the Input Shaft

NOTE

Replacement of a loose or seized throw-out bearing requires special equipment and should be performed at the factory.

1. Perform the procedure in Section 5.2.2.

2. Inspect the shaft for damage. If the shaft is damaged, obtain a replacement input shaft assembly and replace the shaft using the procedure in Section 5.2.2.1.

3. If you are replacing a bearing on the left end of the shaft, remove the machined pulley and key. Remove the left bearing cap using a gear puller or press.

4. If you are replacing a bearing on the right end of the shaft, remove the bearing cap using a gear puller or press.

5. Remove the bearing using a gear puller or press. Refer to Step 2 if the input shaft is damaged.

6. Press a new bearing onto the shaft using an arbor press.

7. Apply Loctite Primer T and Loctite RC 609 to the inside of the bearing cap and replace the bearing cap.

8. Replace the machined pulley and key if

they were removed. Align the machined pulley with the drive motor shaft using the setscrew on the pulley to align.

9. Replace the input shaft by performing steps 3 through 13 of Section 5.2.2.1.

5.2.2.3 Reinstallation of a Loose Bearing on the Input Shaft

NOTE

Replacement of a loose or seized throw-out bearing requires special equipment and should be performed at the factory.

1. Perform the procedure in Section 5.2.2.

2. Carefully remove the loose bearing from the end of the shaft.

3. Inspect the input shaft. If the shaft is damaged, obtain a replacement input shaft assembly and replace the shaft using the procedure in Section 5.2.2.1.

4. If the shaft is not damaged, perform the following.

a. Clean the inside of the bearing cap and the inner and outer bearing races with Loctite Primer T.

b. Apply Loctite RC 609 to the end of the shaft, the inside of the bearing cap and the inner and outer races of the bearing.

c. Assemble the bearing and the bearing cap and allow approximately 30 minutes for the Loctite RC 609 to set.

5. Perform steps 3 through 13 of Section 5.2.2.1 to install the input shaft.

5.2.2.4 Speed Change Spindle Assembly Replacement

1. Perform the procedure in Section 5.2.2.

2. Pull the speed change spindle assembly towards the drive motor.

3. Remove the chain from the spindle sprocket.

4. Remove the speed change spindle assembly from the pin at the base of the headframe.

5. Replace with an undamaged speed change spindle assembly and align with the pin at the base of the headframe.

6. Replace the chain on the spindle sprocket.

7. Perform steps 3 through 13 of Section 5.2.2.1 to replace the input shaft.

8. Calibrate speed (Section 5.4.1).

5.2.2.5 V-Belt and/or Machined Pulley Replacement

1. Inspect the V-belt and the machined pulley to determine if the pulley has worn unevenly because of a glazed V-belt.

2. If replacing a V-belt or if replacing the machined pulley on a Q55, perform the procedure in Section 5.2.1.

3. If replacing the machined pulley on a Q65, perform the procedure in Section 5.2.2 to remove the input shaft.

4. Loosen the setscrew on the machined pulley. The V-belts can be removed by applying side pressure to the belts while rotating the pulley.

5. If replacing the machined pulley, remove the pulley and key from the shaft. On the Q55 treadmill it may be necessary to remove the cable ties to move the cable assembly out of the way.

6. If replacing a V-belt or the machined pulley on the Q55, reassemble in reverse order of disassembly.

7. If replacing the machined pulley on a Q65, perform steps 3 through 13 of Section 5.2.2.1 to reassemble the input shaft.

8. Align the machined pulley to the pulley on the output shaft of the drive motor. Use the setscrew on the machined pulley to make the adjustment.

9. Replace the hood and handrail.

5.2.3 Disassembly to Remove the Output Shaft Assembly

1. With the treadmill on, decrease speed to minimum.

2. Unplug the treadmill, remove the handrail and lift the hood straight up off the treadmill.

CAUTION

Exercise caution to avoid damage to bearings and caps on the output shaft. If the output shaft is scarred or if the moveable sheave is frozen on the output shaft, the entire shaft assembly must be replaced.

NOTE

A replacement output shaft assembly can be obtained from Quinton Medical Company's Service Department.

3. Carefully remove the tachometer optical sensor from the bearing cap.

4. Remove the tachometer beam chopper.

5. Remove the speed change motor by removing the two bolts holding it to the bracket.

6. With an air wrench or a ratchet wrench with a long extension, remove the four bolts holding the bearing caps in place.

7. Take a rope or flexible belt and put it around the variable speed belt. Pull straight up to loosen the belt. Figure 5-1 illustrates the loosening of the variable speed belt.

8. Remove the output shaft assembly.

5.2.3.1 Output Shaft Assembly Replacement

1. Perform the procedure in Section 5.2.3.

2. Slip the variable speed belt onto the input and output pulleys.

3. Install an undamaged output shaft by replacing the bearing caps, narrow side down, and tightening the bolts with an air wrench or a ratchet wrench with a long extension.

4. Install the speed change motor back onto the speed change motor bracket.

5. Replace the tachometer optical sensor on the top of the bearing cap.

6. Install the tachometer beam chopper and perform the alignment in Section 5.3.5.

7. Unplug the treadmill and replace the hood and handrail.

8. Restore power to the treadmill and calibrate speed (Section 5.4.1). Before returning the treadmill to service, ensure that the treadmill calibration has been performed on the Q2000 (Steps 1, 2 and 7 of Section 4.4 of the Q2000 Service Manual) or the 645 PTC (Section 6.2 of the 645 PTC Technical Manual).

5.2.3.2 Replacement of a Seized Bearing on the Output Shaft

1. Perform the procedure in Section 5.2.3.

2. Inspect the shaft for damage. If the shaft is damaged, obtain a replacement output shaft and replace the shaft using the procedure in Section 5.2.3.1.

3. Remove the bearing cap from the end of the shaft using a gear puller or press. Refer to Step 2 if the output shaft is damaged.

4. Remove the old bearing from the shaft using a gear puller or press.

5. Press the new bearing onto the shafft using an arbor press.

6. Apply Loctite Primer T and Loctite RC 609 to the inside of the bearing cap and replace the bearing cap.

7. Replace the output shaft by performing steps 2 through 8 of Section 5.2.3.1.

5.2.3.3 Reinstallation of a Loose Bearing on the Output Shaft

1. Perform the procedure in Section 5.2.3.

2. Carefully remove the loose bearing from the end of the shaft.

3. Inspect the output shaft. If the shaft is damaged, obtain a replacement output shaft assembly and replace the shaft using the procedure in Section 5.2.3.1.

4. If the shaft is not damaged, perform the following.

a. Clean the inside of the bearing cap and the inner and outer bearing races with Loctite Primer T.

b. Apply Loctite RC 609 to the end of the shaft, the inside of the bearing cap and the inner and outer races of the bearing.

c. Assemble the bearing and the bearing cap and allow approximately 30 minutes for the Loctite RC 609 to set.

5. Perform steps 2 through 8 of Section 5.2.3.1 to install the output shaft assembly.

5.2.3.4 Variable Speed Belt Replacement

1. Perform the procedure in Section 5.2.2 to remove the input shaft assembly.

2. Perform the procedure in Section 5.2.3 to remove the output shaft assembly.

3. Perform the procedure in Section 5.2.3.1 to replace the output shaft assembly.

3. Perform the procedure in Section 5.2.2.1 to replace the input shaft assembly.

5.2.3.5 Timing Belt Replacement

1. Perform the procedure in Section 5.2.3.

2. Take the molding and side channels off both sides of the treadmill. Use a 1/2-inch wrench to remove the five bolts on the treadmill deck and a 9/16-inch wrench to remove the two bolts holding the side channel to the headframe.

3. Slide the timing belt off.

4. Replace with a new timing belt.

5. Reinstall the output shaft by performing steps 2 through 8 of Section 5.2.3.1.

6. Reinstall the side channels and molding.

7. Adjust the timing belt tension (Section 5.3.1).

5.2.4 Disassembly to Remove the Rack Gears or Pinion Shaft

1. If treadmill grade will change at all, take the grade to approximately 12% (6-7°).

2. Unplug the treadmill, remove the handrail and hood, and lift the hood straight up off the treadmill.

3. Block the front of the headframe with 3- to 6-inch wooden blocks to take the weight off the treadmill wheels.

4. If the rack gear is completely jammed, proceed to Section 5.2.4.2.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

5. Restore power to the treadmill and raise the wheels approximately 1/2 inch off the floor by decreasing grade.

6. Remove the two hexbolts holding the wheels to the rack gears. Note the arrangement of the washers used as spacers.

7. Decrease grade until the rack gears start bouncing on the pinion shaft.

8. Unplug the treadmill.

9. Lift the rack gears straight out the top.

5.2.4.1 Rack Gear Reassembly

1. If a rack gear is completely jammed, perform the procedure in Section 5.2.4.2, omitting step 1 of Section 5.2.4.2.

2. Perform the procedure in Section 5.2.4.

3. Install the undamaged rack gears simultaneously so that they will be parallel.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

4. Restore power to the treadmill and decrease grade. After the gears bounce a few times, increase grade. This should cause the

rack gears to mesh in exactly the same place on both rack gears.

5. Run the rack gears down past the bottom of the handrail support.

6. Check under the bottom of the handrail support to verify that the rack gears are meshing properly. They should protrude an equal amount.

7. Run the rack gears down until there is enough room to replace the wheels.

8. Replace the two bolts that hold the wheels to the rack gears. Reassemble in the configuration noted at step 6 of Section 5.2.4.

9. Run grade down until the wheels touch the floor.

10. Grease the rack gears.

11. Remove the blocks supporting the headframe.

12. Calibrate grade (Section 5.4.2.).

13. Unplug the treadmill and replace the hood and handrail.

5.2.4.2 Replacement of a Jammed Rack Gear

1. If the rack gear is not completely jammed, perform the procedure in Section 5.2.4.1 to replace the rack gear.

2. Perform steps 1 through 3 of Section 5.2.4.

3. Determine which rack gear is jammed by shaking each rack gear lightly from the top. If there is no play in the rack gear, it is jammed.

4. Block the treadmill so that the wheels are 1/2 to 1/4 inch off the floor.

5. Remove the bolt holding the wheel to the rack gear.

6. Remove the four bolts that hold the handrail support in place.

7. Slide the rack gear out sideways.

8. Inspect the gear on the pinion shaft for damage. If the gear is damaged, replace the pinion shaft (Section 5.2.4.3) as well as the rack gear.

9. Rebolt the handrail support in place.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

10. Restore power and decrease grade to run the other rack gear out the top.

11. Perform steps 3 through 13 of Section 5.2.4.1 to reassemble the treadmill and calibrate grade.

5.2.4.3 Pinion Shaft Replacement

1. Perform the procedure in Section 5.2.4.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

2. Restore power to the treadmill and use the grade motor to turn the shaft until the setscrew on the torque limiter is visible.

3. Loosen but do not remove the setscrews from the torque limiter, grade potentiometer sprocket and set collars.

4. Unplug the treadmill.

5. Remove the four bolts that hold the handrail support in place on the side of the treadmill nearest the speed change motor.

6. Slide the pinion shaft out.

7. Slide a new pinion shaft in, placing the torque limiter, set collars and grade potentiometer sprocket on the shaft.

8. Verify that neither end of the pinion shaft touches the handrail support bracket before tightening down the setscrews on the set collars. Tighten the setscrews.

9. Align the grade potentiometer sprocket and tighten the setscrew.

10. Align the torque limiter and grade motor sprocket using the setscrew on the grade motor sprocket.

11. Perform steps 3 through 13 of Section 5.2.4.1 to replace the rack gears and recalibrate grade.

5.2.5 Belt Tracking Switch Replacement

If a belt tracking switch is defective, replace it with a Quinton P/N 06872-001 microswitch and a P/N 02702-001 quick disconnect female terminal.

1. Increase grade to maximum and unplug the treadmill.

2. Note the color and arrangement of wires to the switch and release the quick disconnects at the switch.

3. Remove the two bolts and nuts holding the switch in place.

4. Replace with a new switch and terminal and rebolt onto the bracket.

5. Reconnect the wires.

6. Adjust the lever arms so that there is 1/2 to 3/4 inch distance between the lever arm and the walking belt when the walking belt is centered.

7. Restore power to the treadmill and verify that a belt tracking error message is displayed on the treadmill controller when the switch is manually actuated.

5.2.6 Disassembly to Remove the Walking Belt or Drive or Idler Pulley

1. Unplug the treadmill, remove the handrail and hood and lift the hood straight up off the treadmill.

2. Pry the molding off both sides of the treadmill. Use a 1/2-inch wrench to remove the five bolts on the treadmill deck and a 9/16-inch wrench to remove the two bolts holding the side channels on both sides of the headframe.

3. Block the right side of the headframe and deck to prevent damage to the right side channel.

4. Carefully place the whole treadmill on its right side on blocks.

5. Release the quick disconnects on the wires leading to the belt tracking switches.

5.2.6.1 Walking Belt Replacement

1. Perform the procedure in Section 5.2.6.

2. Slide the walking belt off.

3. Slide a new walking belt on.

4. Reconnect the quick disconnects on the wires to the belt tracking switches.

5. Return the treadmill to an upright position.

6. Replace the side channels and moldings.

7. With the treadmill unplugged, replace the hood and handrail.

8. Restore power to the treadmill and adjust the walking belt tension by performing the procedure in Section 3.2.1 of the Q55/Q65 Operator Manual.

9. Calibrate speed (Section 5.4.1).

5.2.6.2 Drive or Idler Pulley Replacement

NOTE

Repair of seized or loose bearings or a damaged drive or idler pulley requires special equipment and should be done at the factory.

1. Perform the procedure in Section 5.2.6.

2. Remove the drive or idler pulley. The timing sprocket on the drive pulley comes off easily when the drive pulley is free.

3. Replace the drive or idler pulley with new or repaired assembly.

4. Perform steps 4 through 9 of Section 5.2.6.1 to reassemble.

5.2.6.3 Removing a Burr from the Deck

CAUTION

The deck surface has been anodized. Do not machine the deck as this will alter the protective coating.

1. Perform the procedure in Section 5.2.6 to disassemble the walking belt.

2. Slide the walking belt off.

3. File only the burr off the deck.

4. Perform steps 4 through 9 of Section 5.2.6.1 to replace the walking belt and reassemble the treadmill.

5.3 ADJUSTMENT AND ALIGNMENT PROCEDURES

Adjustment procedures are included in this section to adjust the treadmill for proper operation. Alignments of chains and belts, with the exception of the self-aligning variable speed belt, can be done using the setscrews provided and a straightedge.

5.3.1 Timing Belt Tension Adjustment

1. Pry the molding loose from both side of the treadmill.

2. Remove the four 9/16-inch bolts and washers on either side of the headframe.

3. If the timing belt is so tight that it hums or whines during operation, move the headframe assembly toward the walking belt.

4. If the timing belt is so loose that it slips on the timing pulley, move the headframe further away from the walking belt.

5. Replace the bolts and washers.

6. Replace the molding.

5.3.2 Walking Belt Tension or Track Adjustment

Adjust the walking belt tension by performing the procedure in Section 3.2.1 of the Q55/Q65 Operator Manual. Adjust the walking belt track by performing the procedure in Section 3.2.2 of the Q55/Q65 Operator Manual.

5.3.3 Adjusting the Setscrews on the Speed Change Yoke

1. Verify that step 7 of the speed calibration procedure (Section 5.4.1) has been performed and that the speed change yoke setscrews require adjustment.

2. Unplug the treadmill, remove the handrail and hood, and lift the hood straight up off the treadmill. Locate the speed change spindle assembly (Figure 5-2).

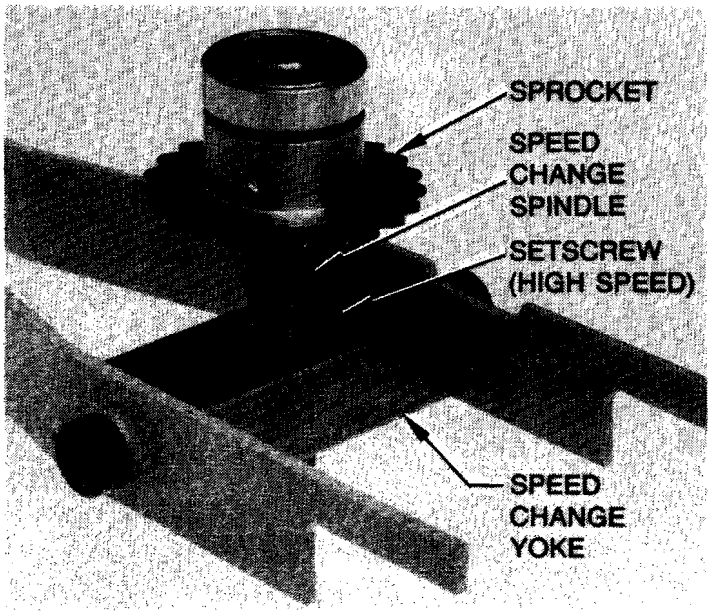


Figure 5-2 Speed Change Spindle Assembly

3. If speed will not decrease to minimum, perform the following.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

a. Restore power to the treadmill and observe the speed change spindle assembly and the speed indicator as you decrease speed to minimum. Unplug the treadmill.

b. Work from the front end of the treadmill to adjust the speed change yoke setscrew. Use a 1/8-inch Allen head wrench to turn the setscrew nearest the bearing cap one turn counterclockwise.

c. Repeat steps 3a and 3b as needed to achieve minimum speed.

4. If speed will not increase to maximum, perform the following.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

a. Restore power to the treadmill and observe the speed change spindle assembly and the speed indicator as you increase speed to maximum.

b. Work from the walking belt end of the headframe to adjust the speed change yoke setscrew. Use a 1/8-inch Allen wrench to turn the setscrew nearest the moveable sheave one turn counterclockwise.

c. Repeat steps 4a and 4b as needed to achieve maximum speed.

5. With the treadmill unplugged, replace the hood and handrail.

6. Perform treadmill calibration on the Q2000 (Steps 1, 2 and 7 of Section 4.4 of Q2000 Service Manual) or 645 PTC (Section 6.2 of PTC Technical Manual).

5.3.4 Torque Limiter Adjustment

1. Unplug the treadmill and remove the handrail and hood.

2. Use a flat-bladed screwdriver to loosen the tabs on the torque limiter.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

3. Restore power to the treadmill and decrease grade to minimum. Keep the grade decrease pushbutton continuously depressed while performing step 4 or 5.

4. Using an amp probe capable of measuring low amperage accurately, perform the following procedure to reset the torque limiter.

a. Place the amp probe around a single red or black lead to connector 2A1P3. Measure the current draw when the torque limiter is actually slipping.

b. Compare the measured amperage with the amperage noted on the grade motor nameplate.

c. If measured amperage is higher than rated amperage, within 5%, slacken the torque limiter nut (turn the nut counterclockwise) with water pump pliers until the amperage reading is correct.

d. If measure amperage is lower than rated amperage, within 5%, tighten the torque limiter nut (turn the nut clockwise) until the amperage reading is correct.

5. If an amp probe capable of measuring low amperage accurately is not available, the following method may also be used to reset the torque limiter.

a. Place weights (400 lb.) about 18 inches from the front edge of the deck in the approximate position a patient's front foot would strike the treadmill.

b. Tighten the torque limiter nut (turn the nut clockwise) until the treadmill just picks up the weight. Stop tightening the nut as soon as the treadmill picks up the weight.

6. Tighten down the tabs on the torque limiter.

7. Unplug the treadmill and replace the hood and handrail.

8. Restore power to the treadmill and perform treadmill calibration of the Q2000 (Steps 1, 2 and 7 of Section 4.4 of Q2000 Service Manual) or 645 PTC (Section 6.2 of 645 PTC Technical Manual).

5.3.5 Tachometer Beam Chopper Alignment

1. Unplug the treadmill and remove the handrail and hood.

2. Center the beam chopper by sliding it along the shaft and checking the relationship

to the tachometer LED. A screwdriver may be used to slide the beam chopper along the shaft. The beam chopper should be at the exact center of the gap.

3. Calibrate speed (Section 5.4.1).

5.4 CALIBRATION PROCEDURES

The calibration procedures included in this section should be performed as needed to keep treadmill speed and grade indications accurate. The treadmill calibration procedures included in the Q2000 Service Manual (Steps 1, 2 and 7 of Section 4.4) and the 645 PTC Technical Manual (Section 6.2) compute coasting constants and speed and grade ranges. They do not affect the performance of the treadmill. After any speed or grade calibration has been performed, the Q2000 or 645 PTC treadmill calibration should also be performed to ensure that coasting constants and speed and grade ranges are correct.

5.4.1 Speed Calibration

A hand-held digital tachometer (Biddle #359970 or equivalent) and a multimeter (Fluke #8022B or equivalent) are recommended for speed calibration. Though the procedure can be performed without using either instrument, the resulting calibration will be less accurate. The following procedure can be performed with the hood and handrail removed, provided caution is exercised.

1. If you are using a hand-held digital tachometer, take the speed to approximately 7 mph/11.3 kph and measure the speed of the walking belt (1 mph = 88 fpm).

2. If you are not using a digital tachometer, take the speed to 1 mph/1.6 kph and measure speed by performing steps 2 through 4 of Section 3.2.3 of the Q55/Q85 Operator Manual.

3. If you are using Quinton's Treadmill Controller, turn off the treadmill and see if the speed reading goes to zero. If it does not, perform the following.

a. Remove the four bolts holding the control panel on the Treadmill Controller.

b. Turn the adjustment screw located on the back of the speed meter until the speed meter reading is zero.

c. Replace the four bolts to reassemble the Treadmill Controller.

4. If the treadmill speed reading stayed at zero while step 1 or 2 was being performed, troubleshoot the tachometer (Section 4, Troubleshooting Tree L).

5. If the speed reading was not accurate on the Q2000 or 645 PTC, perform the following.

a. If the hood and handrail are still in place, unplug the treadmill and remove the handrail and hood.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

b. Restore power to the treadmill. Turn the screw at tachometer gain potentiometer 2A1R13 on the PCB until the speed reading is correct. If you are using a multimeter, 1 milliampere should equal 1 mph/1.6 kph.

c. Unplug the treadmill and replace the hood and handrail. Proceed to step 7.

6. If the speed reading was not accurate on Quinton's Treadmill Controller, use the adjustment screw to the left of the DEC pushbutton to adjust the speed meter.

7. Take speed to maximum and minimum to verify that the treadmill operates through the full range of speeds (Q55 should go from 1 mph/1.6 kph to 10 mph/16 kph and Q65 should go from 1.5 mph/2.4 kph to 15 mph/24 kph).

8. If the speed will not increase to maximum or decrease to minimum, adjust the setscrew on the speed change yoke (Section 5.3.3).

9. Before returning the treadmill to service, unplug the treadmill and replace the hood and handrail.

10. Perform the treadmill calibration on the Q2000 (Steps 1, 2 and 7 of Section 4.4 of the Q2000 Service Manual) or the 645 PTC (Section 6.2 of the 645 PTC Technical Manual).

5.4.2 Grade Calibration

A multimeter (Fluke #8022B or equivalent) and a universal protractor level (Sears Craftsman #9 3995 or equivalent) are recommended for grade calibration. Though the procedure can be performed without using either instrument, the resulting calibration will be less accurate. The following procedure can be performed with the hood and handrail removed, provided caution is exercised.

1. Take grade to minimum. Use a bubble level or a protractor to verify that the treadmill is at zero grade.

NOTE

Grade readings are relative to the floor. A significantly slanted floor will affect grade measurement.

2. Use the bubble level or protractor to verify that the floor is level. Move the treadmill to a level area if necessary to calibrate grade.

3. If you are using Quinton's Treadmill Controller, unplug the treadmill and see if the grade meter goes to zero. If it does not, perform the following.

a. Remove the four bolts holding the control panel in place.

b. Turn the adjustment screw located on the back of the grade meter until the grade meter reading is zero.

c. Replace the four bolts to reassemble the Treadmill Controller.

4. If the bubble level indicates grade is zero but the grade reading is not zero, perform the following.

a. If the hood and handrail are still in place, unplug the treadmill and remove the handrail and hood.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

b. Restore power to the treadmill and turn the screw at the grade zero potentiometer 2A1R29 on the PCB until the grade indication is zero. If you are using a multimeter, the reading at 2A1R29 should be zero milliamperes.

5. If you are using a protractor to measure grade, measure grade and proceed to step 8.

6. Mark a spot on the floor exactly 4 feet in front of the treadmill deck foot.

7. Increase the treadmill grade to 25% (14°) and, using a carpenter's square, measure the height from the spot marked on the floor. The height should be 1 foot.

8. If the height from the floor is not 1 foot or angle is not 14°, manipulate the grade so that the height and angle are correct

9. If you are using Quinton's Treadmill Controller, adjust the grade meter to exactly 25% using the adjustment screw directly to the right of the ELEV UP pushbutton.

10. If the grade indication is not correct on the Q2000 or 645 PTC, perform the following.

a. If the handrail and hood are still in place, unplug the treadmill and remove the handrail and hood.

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

b. Restore power to the treadmill and turn the screw at the grade potentiometer 2A1R30 on the PCB until the grade reading is 25%. If you are using a multimeter, the reading should be 12.5 milliamperes (1 millilampere should equal a 2% increase in grade).

11. Before returning the treadmill to service, unplug the treadmill and replace the hood and handrail.

12. Perform the treadmill calibration on the Q2000 (Steps 1, 2 and 7 of Section 4.4 of the Q2000 Service Manual) or 645 PTC (Section 6.2 of the 645 PTC Technical Manual).

5.4.3 Trip Level (Low Volts) Calibration

This procedure is included to provide information about the setting of trip level potentiometer 2A1R23. This potentiometer should not require resetting once it has been set at the factory.

1. Unplug the treadmill and remove the handrail and hood.

2. Hook the treadmill up to a Variac autotransformer that can provide at least 10% less than operating voltage (for 230V, use 207V; for 208V, use 187V; for 115V, use 103V).

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

3. Turn the drive motor on at 1-3 mph or 2-5 kph.

4. Turn the screw at trip level potentiometer 2A1R23 on the PCB so that the LO VOLTS LED on the PCB just barely comes on.

5. Unplug the treadmill from the Variac autotransformer and replace the handrail and hood.

5.4.4 Grade Potentiometer Calibration

This procedure may be performed with the hood and handrail already removed and power on, provided caution is exercised.

1. Take treadmill grade to approximately 12% (6-7°).

2. Unplug the treadmill, remove the handrail and lift the hood straight up off the treadmill.

3. Turn the sprocket on the pinion shaft toward the drive motor until the grade reading is 8-10% (5-6°).

WARNING

Do not wear loose clothing around rotating machinery. High voltage is present when the treadmill cable is plugged in.

4. Restore power to the treadmill and decrease the grade to minimum. Verify that the torque limiter is slipping and that the grade is level. The grade potentiometer is now set at zero.

5. Calibrate grade (Section 5.4.2).

5.5 POST-MAINTENANCE PROCEDURE

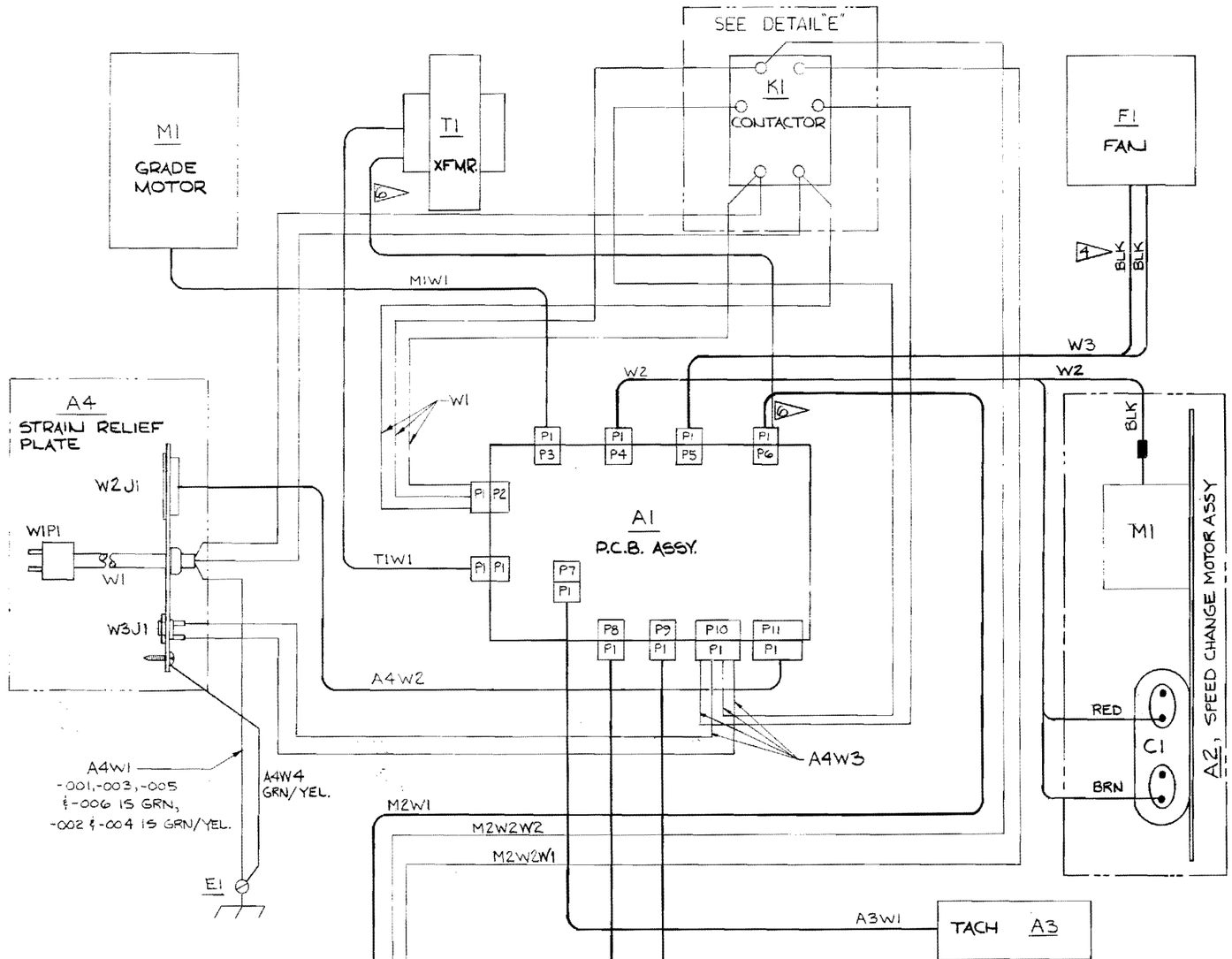
The checkout procedure provided in Section 2.4 can be performed to verify that the Q55/Q65 treadmill is operable following maintenance. If a more detailed procedure is desired, the troubleshooting tree provided on pages 4-2 through 4-5 can be used to perform a checkout test.

SECTION 6. DRAWINGS

This section contains the assembly drawings and schematics for the Q55/Q65 Medical Treadmill. The following drawings are provided in the order listed:

DRAWING NUMBER	TITLE	NO. OF SHEETS
00208-001 through 6	Cardio Exercise Treadmill Q55	5
00208-201	Cardio Exercise Treadmill Q55 Schematic	2
00221-001 through 6	Cardio Exercise Treadmill Q65	5
00221-201	Cardio Exercise Treadmill Q65 Schematic	2
13013-001, 2, 3 F	P.C.B. Assembly, T.M. Control	4
13013-201 C	P.C.B. Assembly, T.M. Control (Schematic)	2
13032-001 through 6 C	Headframe Assembly, Q55 Treadmill	5
13064-001, 2	Input Shaft Assembly	1
13066-001 C	Spindle Assembly, Speed Change	2
13067-001, 2, 3 F	Motor Assembly, Speed Change (2A2)	1
13068-001 A	Output Shaft Assembly	1
13657-001 through 4 B	Motor Assembly, Drive (2M2)	6
13673-001 through 4 B	Motor Assembly, Grade (2M1)	1
13677-001 through 7 C	Transformer Assembly (2T1)	2
14493-001, 2, 3 A	Headframe Assembly, Q65 Treadmill	5
14544-001, 2 A	Controller Assembly	2

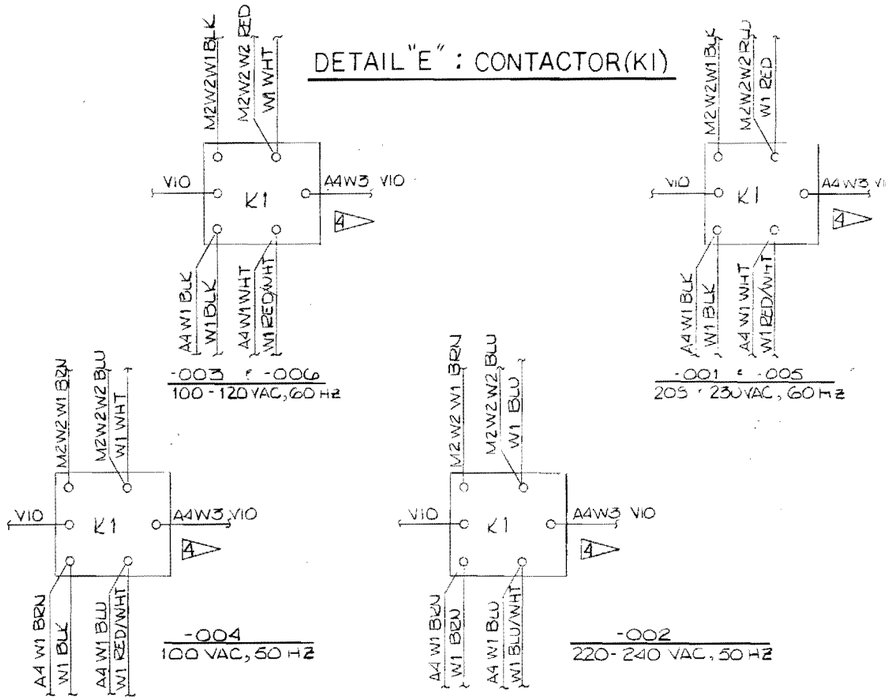
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



NOTES:

1. PREFIX TO REF. DESIGNATIONS ON THIS DWG. IS 2.
2. TAG WITH PART NO. AND REV. LTR. TO WHICH MFD.
3. USE LOCTITE, ITEM 94, ON ALL THREADED CONNECTIONS.
4. W3 CABLE (TO F1 FROM A1P5) HAS INTERCHANGEABLE BLACK LEADS FOR FAN HOOKUP, AND A4W3 CABLE (FROM A1P10 TO W3J1 AND K1) HAS INTERCHANGEABLE VIOLET LEADS TO CONTACTOR.
5. SEE SHEET 5 FOR WIRE ROUTING. WIRES MUST NOT BE SUBJECT TO PINCHING OR ABRASION; ROUTE AWAY FROM MOVING PARTS AND SHARP EDGES. USE WIRE TIES, ITEM 57, AS REQUIRED.
6. 100 VAC 60 HZ.

DETAIL "E": CONTACTOR (K1)



-006	-005	-004	-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
—	—	8	—	8	—	97	014481-001	WASHER, SOUND INSULATOR		
—	—	4	—	4	—	96	011881-006	NUT, LOCKING	1/4-20	
1	—	4	—	4	—	95	010820-125	SCREW, HEX CAP	1/4-20 × 1-1/2 LG.	
.01	.01	.01	.01	.01	.01	94	001739-002	ADHESIVE, LOCTITE	#242	
—	—	—	—	1	—	93	013387-003	HARNESS ASSY	CONTACTOR	W1
1	—	1	1	—	—	92	013387-002	HARNESS ASSY	CONTACTOR	W1
—	1	—	—	—	1	91	013387-001	HARNESS ASSY	CONTACTOR	W1

PARTS LIST

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES TOL. .XX ± — .XXX ± — ANGLE ±
QUANTITY PER ASSEMBLY
CLASS CODE
VALUE CODE
DO NOT SCALE DRAWING PRINTS

DRAWN	S.K.PLAHN	10-6-82
CHECKED		11-17-82
ENGR.	BDD	11-17-82
QUAL.		
MFG.		
OTHER		

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
Q55
HEADFRAME ASSY

SIZE	MODEL	DWG. NO.	REV.
D	Q55	013032	D
SCALE —	DIST. CODE	SHEET 2 OF 5	

DWG. NO. 013032 SH 2 REV D

QF02-0016879

CONT. ON SHEET 2.

SEE SHEET 2 FOR NOTES.

006	005	004	003	002	001	ITEM NO.	PART NO.	DESCRIPTION	MATERIAL SPEC.	REF. DES.
						90				
1	1	1	1	1	1	89	013384-001	HARNESS ASSY	FAN	W3
1	1	1	1	1	1	88	013377-001	HARNESS ASSY	SPEED CHNG. MTR.	W2
1	1	1	1	1	1	87	013382-001	HARNESS ASSY	BELT SWITCH	W4
2	2	2	2	2	2	86	014551-001	SPACER	STRAIN RELIEF PLT. ASSY	
2	2	2	2	2	2	85	012990-001	BEARING		
2	2	2	2	2	2	84	002594-001	COLLAR, SET		
1	1	1	1	1	1	83	001403-001	SCREW, SET	1/4-20 x 3/8 L, NYLON	
1	1	1	1	1	1	82	010833-144	SCREW, SET	#10-32 x .25 L, STL.	
1	1	1	1	1	1	81	001100-004	KEY, STEEL	3/16 SQ. x 1.50 L.	
8	8	8	8	8	8	80	013767-001	WASHER, ISOLATION	1/4 PHENOLIC	
2	2	2	2	2	2	79	010820-207	SCREW, HEX CAP	3/8-16 x 2.50 L.	
8	8	8	8	8	8	78	001164-005	WASHER, FLAT	5/16	
4	4	4	4	4	4	77	001177-001	NUT, HEX	5/16-18	
1	1	1	1	1	1	76	013751-001	STUD, SPD. CHANGE	5/16-18 x 1.75 L.	
8	8	8	8	8	8	75	010820-266	SCREW, HEX CAP	5/16-18 x 3.25	
2	2	2	2	2	2	74	010820-126	SCREW, HEX CAP	5/16-18 x 1.50 L.	
2	2	2	2	2	2	73	010820-106	SCREW, HEX CAP	5/16-18 x 1.25 L.	
10	10	10	10	10	10	72	001164-004	WASHER, FLAT	1/4	
4	4	—	4	—	4	71	001179-001	NUT, HEX	1/4-20	
2	2	2	2	2	2	70	010826-105	SCREW, ALLEN FLT. HD.	1/4-20 x 1.25 L.	
4	4	—	4	—	4	69	010820-105	SCREW, HEX CAP	1/4-20 x 1.25 L.	
6	6	6	6	6	6	68	010819-245	SCREW, HEX CAP	1/4-20 x .75 L.	
2	2	2	2	2	2	67	010819-205	SCREW, HEX CAP	1/4-20 x .50 L.	
2	2	2	2	2	2	66	002158-001	NUT, HEX	#10-32	
1	1	1	1	1	1	65	008642-001	SCREW, SLOTTED HEX	GREEN #10-32 x .38 L.	E1
1	1	1	1	1	1	64	001182-001	WASHER, EXT. STAR	#10	
2	2	2	2	2	2	63	001164-003	WASHER, FLAT	#10	
2	2	2	2	2	2	62	010827-204	SCREW, PAN HD. PHIL.	#10-32 x .50 L.	
2	2	2	2	2	2	61	010827-212	SCREW, PAN HD. PHIL.	#10-24 x .50 L.	
2	2	2	2	2	2	60	001575-001	NUT, HEX	#8-32	
2	2	2	2	2	2	59	010827-183	SCREW, PAN HD. PHIL.	#8-32 x .38 L.	
13	13	13	13	13	13	58	006769-001	RIVET, POP	1/8" DIA. X .38 L., AL.	
.01	.01	.01	.01	.01	.01	57	001899-001	TIE, CABLE	MINI	
23	23	23	23	23	23	56	011560-002	TIE MOUNT	#6 HOLE	
4	4	4	4	4	4	55	001767-001	NUT, HEX	#6-32	
16	16	16	16	16	16	54	010511-005	WASHER, SPLIT	#6	
10	10	10	10	10	10	53	005958-001	SPACER, HEX	#6-32 x .38 L.	
2	2	2	2	2	2	52	001164-001	WASHER, FLAT	#6	
2	2	2	2	2	2	51	010827-322	SCREW, PAN HD. PHIL.	#6-32 x 1.00 L.	
						50				
2	2	2	2	2	2	49	010827-202	SCREW, PAN HD. PHIL.	#6-32 x .50 L.	
16	16	16	16	16	16	48	010827-142	SCREW, PAN HD. PHIL.	#6-32 x .25 L.	
1	1	1	1	1	1	47	013086-001	CONTACTOR		K1
1	1	1	1	1	1	46	013375-001	PCB BRACKET		
2	2	2	2	2	2	45	001210-001	ROLL PIN		
2	2	2	2	2	2	44	002298-001	WHEEL		
1	1	1	1	1	1	43	002291-001	ELV. CHAIN		
1	1	1	1	1	1	42	002290-001	ELV. SPROCKET	TORQUE LIM.	
1	1	1	1	1	1	41	002288-001	TORQUE LIMITER		
1	1	1	1	1	1	40	003427-001	POT. DRIVE CHAIN		
1	1	1	1	1	1	39	001494-001	ELV. POT. SPROCKET		
1	1	1	1	1	1	38	013044-001	PINION SHAFT		
1	1	1	1	1	1	37	011738-001	COOLING FAN		F1
1	1	1	1	1	1	36	013374-001	FAN BRACKET		
1	1	1	1	1	1	35	014561-001	ELV. SPROCKET	ELV. POT. — SHAFT	

QTY. PER ASSY.

PARTS LIST

006	005	004	003	002	001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
1	1	1	1	1	1	34	012984-001	HEADFRAME		
1	1	1	1	1	1	33	013061-001	ELV. POT. BRACKET		
1	1	1	1	1	1	32	013062-001	BELT, VARIABLE SPEED		
1	1	1	1	1	1	31	013705-002	BEARING CAP		
3	3	3	3	3	3	30	013705-001	BEARING CAP		
2	2	2	2	2	2	29	003792-001	BELT, V		
						28				
1	1	1	1	1	1	27	013077-001	TACH. ASSY		A3
2	2	2	2	2	2	26	012991-001	BRACKET, HANDRAIL		
2	2	2	2	2	2	25	013081-001	RACK GEAR		
1	1	1	1	1	1	24	013066-001	SPD. CHNG. SPINDLE ASSY		
1	1	1	1	1	1	23	013089-001	ELV. POT. ASSY		R1
1	1	1	1	1	1	22	013068-001	OUTPUT SHAFT ASSY		
1	1	1	1	1	1	21	013064-001	INPUT SHAFT ASSY		
1	—	1	1	—	—	20	014100-003	PLATE ASSY, STRAIN RELIEF	100/120V 50/60HZ	A4
—	—	—	—	1	—	19	014100-002	PLATE ASSY, STRAIN RELIEF	200/240V 50HZ	A4
—	1	—	—	—	1	18	014100-001	PLATE ASSY, STRAIN RELIEF	200/240V 60HZ	A4
—	—	—	—	1	—	17	013013-003	PCB ASSY, CONTROL	220/240V 50HZ	A1
1	—	1	1	—	—	16	013013-002	PCB ASSY, CONTROL	100/120V 50/60HZ	A1
—	1	—	—	—	1	15	013013-001	PCB ASSY, CONTROL	200/240V 60HZ	A1
—	—	1	1	—	—	14	013677-004	TRANSFORMER ASSY	100V 50/60HZ	T1
1	—	—	—	—	—	13	013677-003	TRANSFORMER ASSY	110/120V 60HZ	T1
—	1	—	—	—	—	12	013677-002	TRANSFORMER ASSY	208V 60HZ	T1
—	—	—	—	1	1	11	013677-001	TRANSFORMER ASSY	220/240V 50/60HZ	T1
—	—	1	—	—	—	10	013673-004	GRADE MOTOR ASSY	100/120V 50HZ	M1
—	—	—	—	1	—	9	013673-003	GRADE MOTOR ASSY	220/240V 50HZ	M1
1	—	—	1	—	—	8	013673-002	GRADE MOTOR ASSY	100/120V 60HZ	M1
—	1	—	—	—	1	7	013673-001	GRADE MOTOR ASSY	208/240V 60HZ	M1
—	—	1	—	1	—	6	013067-003	SPD. CHG. MOTOR ASSY	50HZ	A2
1	1	—	1	—	1	5	013067-002	SPD. CHG. MOTOR ASSY	60 HZ	A2
—	—	1	—	—	—	4	013657-004	DRIVE MOTOR ASSY	100/120V 50HZ	M2
—	—	—	1	—	—	3	013657-003	DRIVE MOTOR ASSY	200/240V 50HZ	M2
1	—	—	1	—	—	2	013657-002	DRIVE MOTOR ASSY.	100/120V 60HZ	M2
—	1	—	—	—	1	1	013657-001	DRIVE MOTOR ASSY.	208/240V 60HZ	M2
	—	—	—	—	—	—	-006	HEADFRAME ASSY	115V 60HZ 1Ø	
—		—	—	—	—	—	-005	HEADFRAME ASSY	208V 60HZ 1Ø	
—	—		—	—	—	—	-004	HEADFRAME ASSY	100V 50HZ 1Ø	
—	—	—		—	—	—	-003	HEADFRAME ASSY	100V 60HZ 1Ø	
—	—	—	—		—	—	-002	HEADFRAME ASSY	230V 50HZ 1Ø	
—	—	—	—	—		—	-001	HEADFRAME ASSY	230V 60HZ 1Ø (STD)	

LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		1) CORRECTED MOTOR REF. DESIG.S 2) ADDED PART NAMES TO WIRING DIAGRAM ON SHT. 2 EFF PT: VIII DISP: NONE 3) ADDED ITEMS 95,96 & 97 (-002 & -004) EFF PT: V DISP: REWORK		12/13/82
B		ITEM 97 QTY WAS 4, SHOWN IN DETAIL C. EFF PT: VII DISP: USE		2-24-83
C		1) P/L; ITEM 54 QTY. WAS 3, ITEM 56 QTY. WAS 20, ITEM 58 QTY. WAS 12, 2) REMOVED ITEM 90. (2) EXTENSIVELY REVISED SHEET 2. 3) ADDED DETAIL "F" TO SHT 4. 4) ADDED SHT 5 EFF PT: VIII DISP USE		4-13-83
D		1) DELETED ITEM 28 012993-001 (2) SHT 2 DETAIL E; (-003 & -006) W1 WHT WAS W1 RED (-002) M2W2W1 BRN WAS M2W2W1 BLU. EFF PT: VIII DISP: NONE		7-14-83 7-15-83 7-15-83

PREPRODUCTION

ALL	000208	000208
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES
TOL. .XX ± .XXX ± ANGLE ±

DRAWN	S.K. PLAHN	10-6-82
CHECKED		11-17-82
ENGR.		11-17-82
QUAL.	Randy Wattle	11-24-82
MFG.		11-29-82
OTHER		

QUANTITY PER ASSEMBLY
CLASS CODE FRAA
VALUE CODE Q55
DO NOT SCALE DRAWING PRINTS

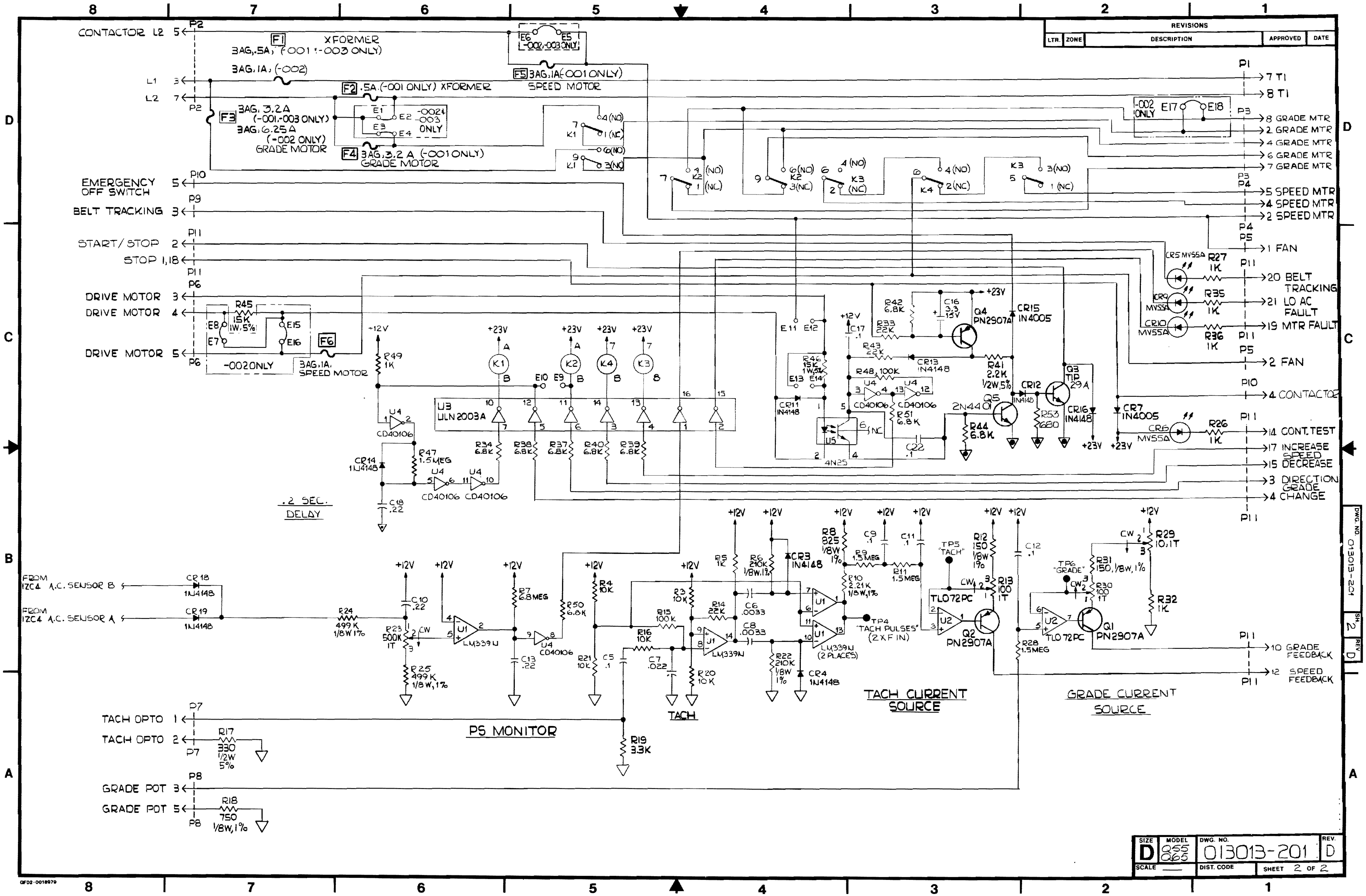
Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
HEADFRAME ASSY
Q55 TREADMILL

SIZE	MODEL	DWG. NO.	REV.
D	Q55	013032	D
SCALE —	DIST. CODE	SHEET 1 OF 5	

DWG. NO. 013032 SH. 1 REV. D

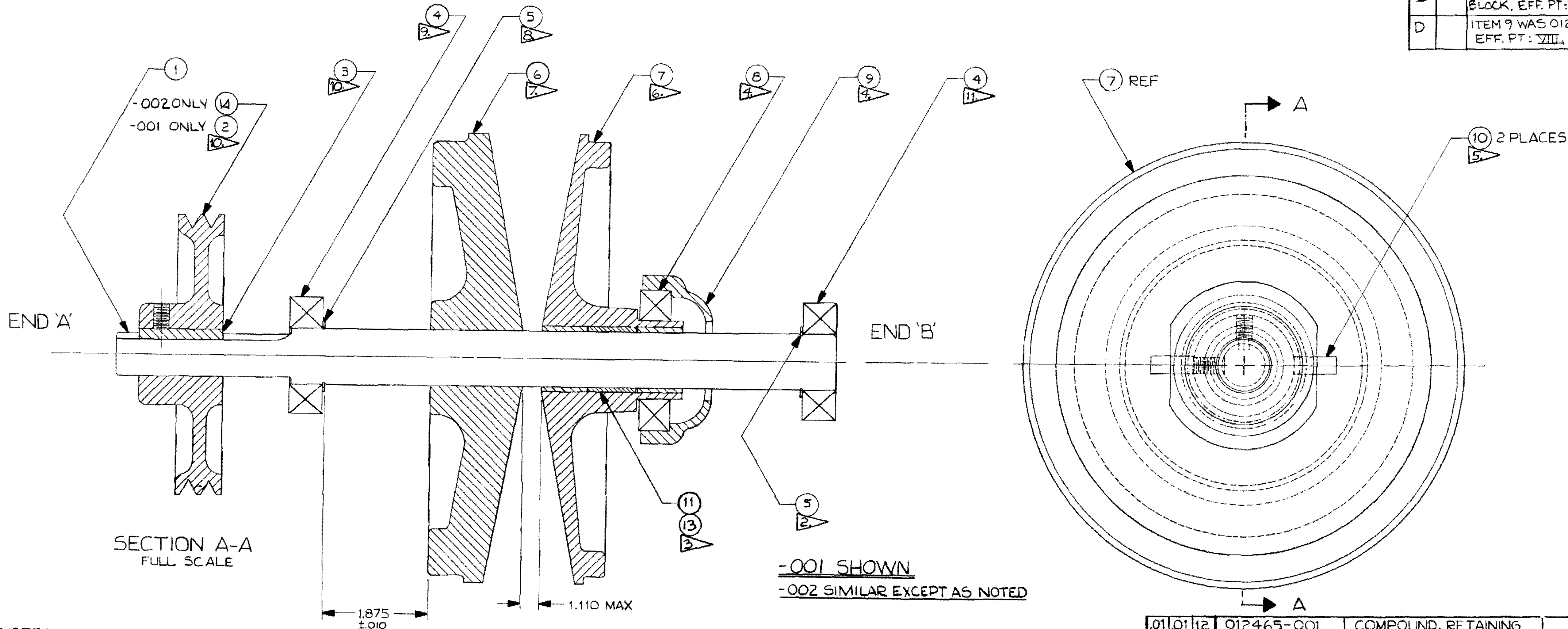
QF03-0018976



REVISIONS
LTR. ZONE DESCRIPTION APPROVED DATE
CONTACTOR L2 5
F1 XFORMER
3AG, .5A, (-001 & -003 ONLY)
3AG, 1A, (-002)
F5 3AG, 1A (-001 ONLY) SPEED MOTOR
F2 .5A (-001 ONLY) XFORMER
F3 3AG, 3.2A (-001, -003 ONLY) 3AG, 6.25A (-002 ONLY) GRADE MOTOR
F4 3AG, 3.2 A (-001 ONLY) GRADE MOTOR
-002 & -003 ONLY
EMERGENCY OFF SWITCH 5
BELT TRACKING 3
START/STOP 2
STOP 1,18
DRIVE MOTOR 3
DRIVE MOTOR 4
DRIVE MOTOR 5
-002 ONLY
F6 3AG, 1A, SPEED MOTOR
ULN 2003A
.2 SEC. DELAY
FROM 1ZC4 A.C. SENSOR B
FROM 1ZC4 A.C. SENSOR A
PS MONITOR
TACH
TACH OPTO 1
TACH OPTO 2
GRADE POT 3
GRADE POT 5
TACH CURRENT SOURCE
GRADE CURRENT SOURCE
"TACH PULSES" (2 X F IN)
LM339N (2 PLACES)
7 T1
8 T1
8 GRADE MTR
2 GRADE MTR
4 GRADE MTR
6 GRADE MTR
7 GRADE MTR
5 SPEED MTR
4 SPEED MTR
2 SPEED MTR
1 FAN
20 BELT TRACKING
21 LO AC FAULT
19 MTR FAULT
2 FAN
4 CONTACTOR
14 CONT. TEST
17 INCREASE SPEED
15 DECREASE
3 DIRECTION GRADE
4 CHANGE
10 GRADE FEEDBACK
12 SPEED FEEDBACK
SIZE D
MODEL 855 865
DWG. NO. 013013-201
REV. D
SHEET 2 OF 2

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		1) ADDED ITEM 13. 2) REVISED NOTE 3. EFF PT: VIII DISP: NONE RELEASE TO PREPRODUCTION	[illegible] BDD	4/12/82
B		1) ADDED -002 CONFIG. 2) ADDED ITEM 14 EFF PT: IX DISP: NEW CONFIG	B. [illegible] BDD	10-5-82
C	A5	ADDED -001 FOR Q65 IN APPLICATION BLOCK. EFF. PT: VIII, DISP: RECORD CHANGE	BDD	[illegible]
D		ITEM 9 WAS 012985-001. EFF. PT: VIII, DISP: RCRD. CHANGE	BDD	7-18-83

PREPRODUCTION



NOTES:

1. BAG OR TAG WITH PART NO. AND REV. LTR. TO WHICH MFD.
2. SNAP ITEM 5 ONTO END 'B' OF ITEM 1.
3. CUT ITEM 11 TO SIZE AND THOROUGHLY SOAK IN ITEM 13 (CYLINDER OIL) PRIOR TO INSERTION INTO ITEM 7 IN POSITION INDICATED.
4. PRESS ITEM 8 ONTO ITEM 7 PRIOR TO PRESSING ITEM 9 ONTO ITEM 8.
5. APPLY ITEM 12 TO ITEM 10 PRIOR TO PRESSING ITEM 10 INTO ITEM 9, (2 PLACES).
6. SLIDE ITEM 7 ONTO ITEM 1 OVER END 'A'.
7. PRESS ITEM 6 ONTO ITEM 1 OVER END 'A' TO THE GIVEN DIMENSION.
8. SNAP ITEM 5 INTO PLACE OVER END 'A'.
9. PRESS ITEM 4 OVER END 'A' TO ITEM 5.
10. PLACE ITEM 3 INTO KEYWAY OF ITEM 1. PRESS ITEM 2 ONTO ITEM 1 OVER END 'A', SLIDING KEYWAY OF ITEM 2 OVER ITEM 3.
11. PRESS ITEM 4 ONTO ITEM 1 OVER END 'B'.

-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION
/	—		-002	INPUT SHAFT ASSY.	
1	—	14	014487-001	PULLEY, MACHINED	2G-7M-.630 x .75
.01	.01	13	013411-001	OIL, CYLINDER	600 WEIGHT

QUANTITY PER ASSEMBLY

PART LIST

-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
.01	.01	12	012465-001	COMPOUND, RETAINING		
1	1	11	011807-007	FELT	.097 THK., WHITE	
2	2	10	012560-001	PIN, DOWEL	.312 DIA. x .750 LG.	
1	1	9	012986-001	HOUSING, BEARING, THWT, MACHINING		
1	1	8	006853-001	BEARING	35MM I.D. x 62MM O.D. x 14MM THK.	
1	1	7	013036-001	MOVABLE SHEAVE ASSY.		
1	1	6	013063-001	SHEAVE, FIXED		
2	2	5	012558-002	RETAINING RING, EXTERNAL	.98 DIA	
2	2	4	006855-001	BEARING	25MM I.D. x 52MM O.D. x 15MM THK.	
1	1	3	001100-004	KEY, SQUARE	.187 x 1.50	
—	1	2	013079-001	PULLEY, MACHINED	7M-4.92 x .750	
1	1	1	013050-001	SHAFT, INPUT		
—	/	/	-001	INPUT SHAFT ASSY.		

QUANTITY PER ASSEMBLY

PARTS LIST

PART NO.	NEXT ASSY. NO.	END ITEM NO.
-001 & -002	014493	000221
-001	013032	000208

APPLICATION

UNLESS OTHERWISE SPECIFIED		DRAWN [illegible]	4 FEB 82	Quinton Instrument Co. 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
ALL DIM. ARE IN INCHES TOL.	.XX ± —	CHECKED [illegible]	5-12-82	TITLE INPUT SHAFT ASSY.
	.XXX ± —	ENGR. BDD	[illegible]	
	ANGLE ± —	QUAL. Randy Walls	4-13-82	
CLASS CODE	SHAA	MFG. [illegible]	4-12-82	
VALUE CODE	000208	OTHER		SIZE D; MODEL Q55 Q65; DWG. NO. 013064; REV. D
DO NOT SCALE DRAWING PRINTS				SCALE FULL; DIST. CODE; SHEET 1 OF 1

DWG. NO. 013064 SH. 1 REV D

CF02-0018979

INDEX OF OPTIONS TABLE II				
DWG NO.		DASH NO.	DWG SIZE	OPTION TYPE
000208		-001	D	230V, 1PHASE, 60HZ
↕		-002	D	230V ↕ ,50HZ
		-003	D	100V ,60HZ
		-004	D	100V ,50HZ
		-005	D	208V ↕ ,60HZ
000208		-006	D	115V, 1PHASE, 60HZ
013689		-001	B	KIT, MASK SUPPORT
013690		-001	B	KIT, SHORT HANDRAIL
013691		-001	B	KIT, LONG HANDRAIL
013756		-001		EMERGENCY OFF SWITCH
000043		-002	C	ARM SUPPORT KIT

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

		.01	.01	.01	.01	.01	.01	32	007403-001	ADHESIVE, LOCTITE	#242	
		1	1	1	1	1	1	31	010011-015	LABEL, ADHESIVE	CAUTION	
		1	1	1	1	1	1	30	010011-005	LABEL, ADHESIVE	NAMEPLATE	
		2	2	2	2	2	2	29	014776-002	SPACER, ROUND	CLEARANCE FOR #10, .31 O.D. x .63 LG	
		4	4	4	4	4	4	28	014776-001	SPACER, ROUND	CLEARANCE FOR #10, .31 O.D x .25 LG	
		2	2	2	2	2	2	27	002158-001	NUT, HEX	#10-32	
		4	4	4	4	4	4	26	001575-001	NUT, HEX	#8-32	
		1	1	1	1	1	1	25	001182-001	WASHER, EXTERNAL STAR	#10	
		1	1	1	1	1	1	24	001182-002	↕ , EXTERNAL STAR	#8	
		4	4	4	4	4	4	23	001164-006	↕ , FLAT	3/8	
		6	6	6	6	6	6	22	001164-003	↕ , FLAT	#10	
		4	4	4	4	4	4	21	001164-002	WASHER, FLAT	#8	
		2	2	2	2	2	2	20	010824-324	SCREW, FLAT HD	#10-32 UNC x 4.0 LG	PHILLIPS REC
		4	4	4	4	4	4	19	002035-001	WASHER, NYLON	#10 x 82° CSK	
		2	2	2	2	2	2	18	003032-003	SCREW, OVAL HD	#10-32 UNC x 1.25 LG	PHILLIPS REC
		2	2	2	2	2	2	17	003032-002	↕ OVAL HD	#10-32 UNC x .50 LG	↕
		5	5	5	5	5	5	16	010827-204	MACH, PAN HD	#10-32 UNC x .50 LG	↕
		5	5	5	5	5	5	15	010827-203	↕ MACH, PAN HD	#8-32 UNC x .50 LG	PHILLIPS REC
		4	4	4	4	4	4	14	010820-107	SCREW, CAP, HEX HD	3/8-16 UNC x 1.25 LG	
		2	2	2	2	2	2	13	012970-001	EXTRUSION, VINYL		
		1	1	1	1	1	1	12	014768-001	COVER, PULLEY		
		1	1	1	1	1	1	11	014702-001	BRACKET, GUARD		
		1	1	1	1	1	1	10	013802-001	HANDGRIP, FABRIC		
		1	1	1	1	1	1	9	012976-001	HANDRAIL		
		1	1	1	1	1	1	8	013015-001	HOOD ASSEMBLY		
		1	1	1	1	1	1	7	012972-001	DECK ASSEMBLY		
		1	–	–	–	–	–	6	013032-006	HEADFRAME ASSY	115V, 60HZ, 1Ø	U2
		–	1	–	–	–	–	5	↕ -005	↕	208V, 60HZ,	↕
		–	–	1	–	–	–	4	-004	↕	100V, 50HZ,	↕
		–	–	–	1	–	–	3	-003	↕	100V, 60HZ,	↕
		–	–	–	–	1	–	2	-002	↕	230V, 50HZ,	↕
		–	–	–	–	–	1	1	013032-001	HEADFRAME ASSY	230V, 60HZ,	U2
		\	–	–	–	–	–	–	-006	CARDIO EXERCISE T.M.	115V, 60HZ,	
		–	\	–	–	–	–	–	-005	↕	208V, 60HZ,	
		–	–	\	–	–	–	–	-004	↕	100V, 50HZ,	
		–	–	–	\	–	–	–	-003	↕	100V, 60HZ,	
		–	–	–	–	\	–	–	-002	↕	230V, 50HZ,	
		–	–	–	–	–	\	–	-001	CARDIO EXERCISE T.M	230V, 60HZ, 1Ø	
		-006	-005	-004	-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

PARTS LIST

NOTES:

1. APPLY ITEM 32 (ADHESIVE, LOCTITE) TO SCREW THREADS WHERE APPLICABLE.
2. SCHEMATIC DIAGRAM: 000208-201.
3. REF DESIGNATION: U2.

PREPRODUCTION

(30) REF

MODEL NO.	SERIAL NO.	VOLTS	F.L. AMPS	FREQ.
Q55	208-001-XXX	230	12	60

CIRCUIT CONDUCTORS: 2 — PHASE: 1

Quinton instrument co. 2121 Terry Avenue Seattle Washington 98121

EXAMPLE OF 000208-001 NAMEPLATE MARKING, SEE TABLE I

PART NO.	MODEL NO.	SERIAL NO.	VOLTS	F.L. AMPS	FREQ.	CIRCUIT CONDUCTORS	PHASE
000208-006	Q55	208-006-XXX	115	24	60	2	1
↕ -005	↕	↕ -005	208	12	60	↕	↕
-004		-004	100	24	50		
-003		-003	100	24	60		
-002		-002	230	12	50		
000208-001	Q55	208-001-XXX	230	12	60	2	1

TABLE I NAMEPLATE INFORMATION

-001 THRU -006	MARKET	MARKET
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

QUANTITY PER ASSEMBLY

UNLESS OTHERWISE SPECIFIED			
ALL DIM. ARE IN INCHES	TOL.	.XX	±
		.XXX	±
		ANGLE	±
CLASS CODE	FINA		
VALUE CODE	Q55 JW		

DO NOT SCALE DRAWING PRINTS

DRAWN	W. SCHMIDT	20 JUN 83
CHECKED	S.K. PLAHN	6-30-83
ENGR.	JOO	6-30-83
QUAL.		
MFG.		
OTHER		

Quinton 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373

TITLE: CARDIO EXERCISE TREADMILL Q55

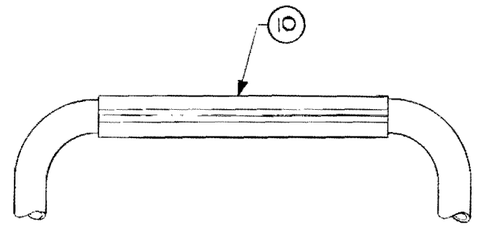
SIZE	MODEL	DWG. NO.	REV.
D	Q55	000208	

SCALE: 1/4 & NOTED | DIST. CODE | SHEET 1 OF 5

DWG NO. 000208 SH. 1 REV.

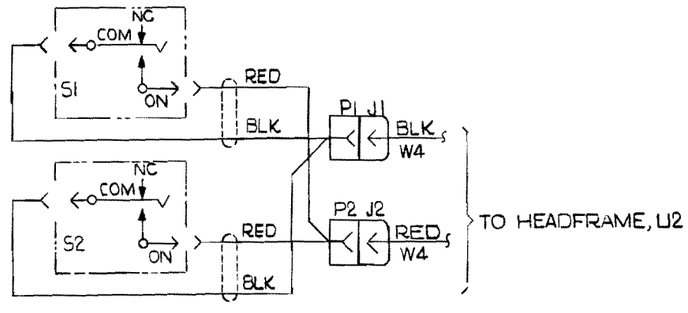
QF02-001-0879

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



VIEW A-A

-001 SHOWN,
-002 TO -006 SIMILAR EXCEPT AS NOTED ON SHT. 3



SCHEMATIC DIAGRAM, BELT TRACKING

PREPRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
	PARTS LIST			

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL: .XX ±, .XXX ±, ANGLE ±

DRAWN HP SCHMIDT 20 JUN 83
CHECKED S.K. PLAHN 6-30-83
ENGR.
QUAL.
MFG.
OTHER

CLASS CODE
VALUE CODE
QUANTITY PER ASSEMBLY

DO NOT SCALE DRAWING PRINTS

Quinton instrument co
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

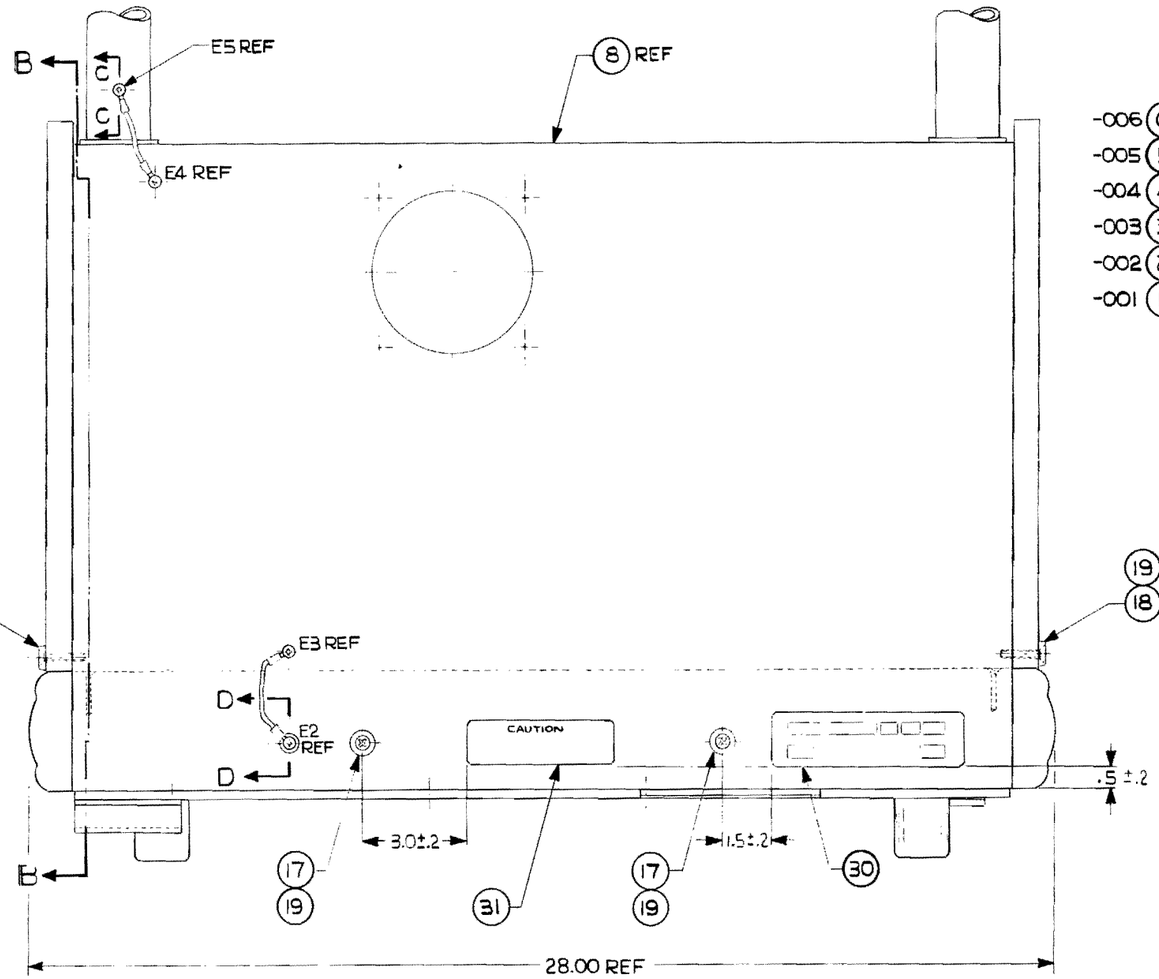
TITLE
CARDIO EXERCISE TREADMILL
Q55

SIZE	MODEL	DWG. NO.	REV.
D	Q55	000208	

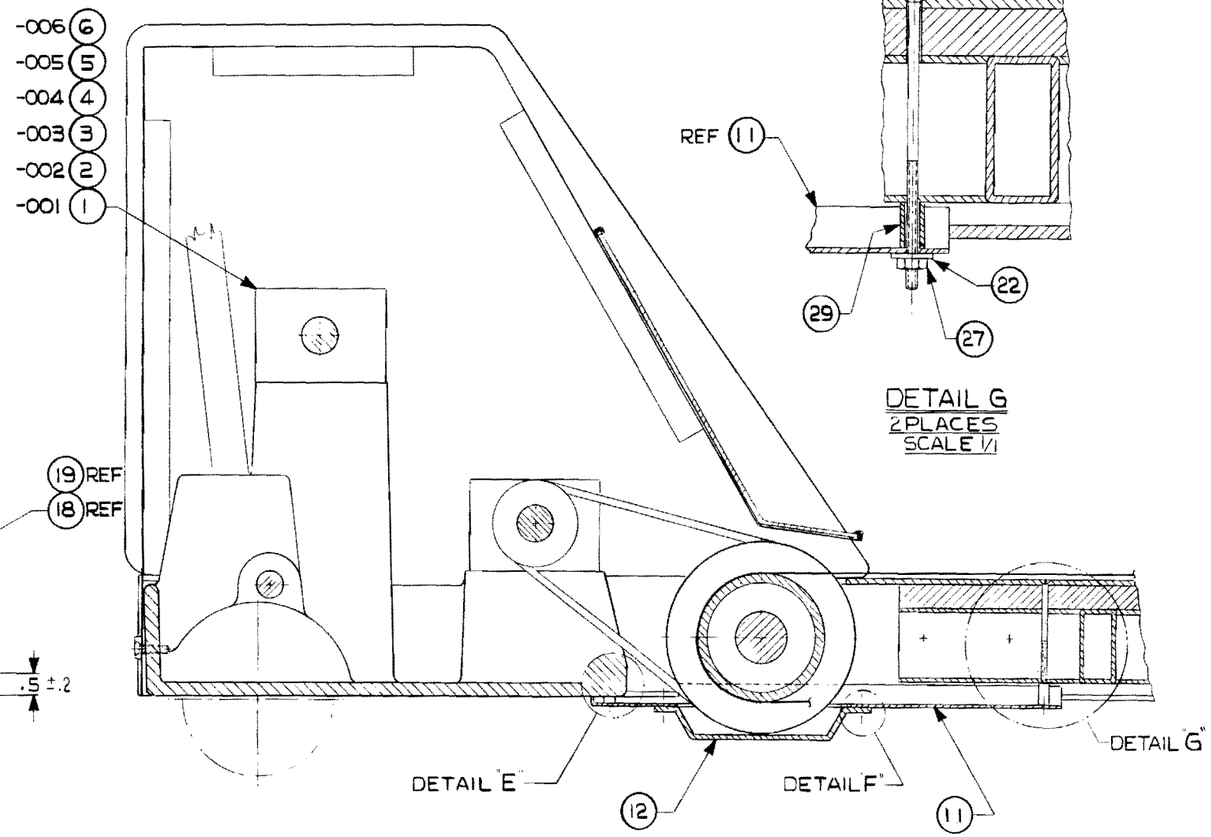
SCALE 1/4 — DIST. CODE — SHEET 2 OF 5

DWG NO 000208 SH 2 REV

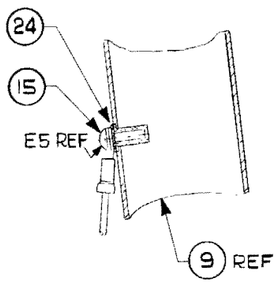
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



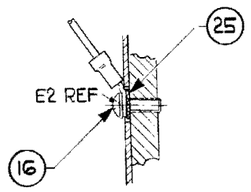
SECTION B-B
SCALE: 1/2



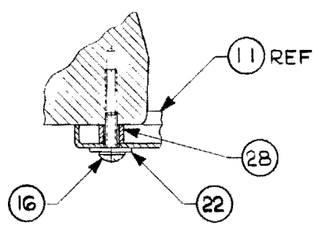
DETAIL G
2 PLACES
SCALE 1/1



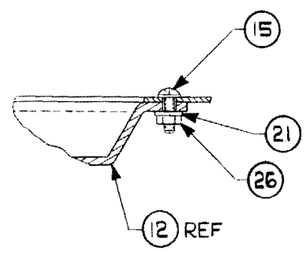
SECTION C-C
SCALE: 1/1



SECTION D-D
SCALE: 1/1



DETAIL E
4 PLACES
SCALE 1/1



DETAIL F
4 PLACES
SCALE 1/1

PREPRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST			

ITEM NUMBER

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES
TOL. .XX ± .XXX ± ANGLE ±

DRAWN HP SCHMIDT 20 JUN 83
CHECKED S.K. PLAHN 6-30-83
ENGR.
QUAL.
MFG.
OTHER

CLASS CODE
VALUE CODE
QUANTITY PER ASSEMBLY

DO NOT SCALE DRAWING PRINTS

Quinton instruments
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
CARDIO EXCERCISE TREADMILL
Q55

SIZE	MODEL	DWG. NO.	REV.
D	Q55	000208	
SCALE 1/2 ENOTED		DIST. CODE	SHEET 3 OF 5

DWG. NO. 000208 SH. 3 REV.

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

- HEADFRAME ASSEMBLY 013032 U2 — TO SHT. 5
  - DRIVE MOTOR ASSEMBLY 013657 M2
    - DRIVE MOTOR 013014
      - 013403
    - PULLEY 012993
      - 013168
    - KEY, STEEL 001100
    - HARNESS ASSY, DRIVE MOTOR 013386
    - WIRE SET, DRIVE MOTOR 013385
    - WIRE SET, DRIVE MOTOR 013393
    - ELEV. SPROCKET (TORQUE LIMITER) 002290
    - ELEV. SPROCKET (ELEV. POT SHAFT) 014561
    - HARNESS ASSY, SPD. CHG. MOTOR 013377 W2
    - WIRE SET, SPD. CHG. MOTOR 013376
    - BEARING 012990
  - GRADE MOTOR ASSEMBLY 013673 M1
    - MOTOR, RIGHT ANGLE 013137
    - SPROCKET 002289
    - KEY, STEEL 002143
    - HARNESS ASSY, GRADE MOTOR 013379
    - WIRE SET, GRADE MOTOR 013378
    - SPEED CHANGE MOTOR ASSY 013067 A2
      - SUB-ASSY, SPEED CHANGE MOTOR 013683
        - MOTOR 001040
      - BRACKET, SPEED CHANGE MOTOR 012988
      - SPROCKET, CHAIN 010230
  - INPUT SHAFT ASSEMBLY 013064
    - INPUT SHAFT 013050
    - SHEAVE, FIXED 013063
    - CASTING, FIXED SHEAVE 014676
    - SHEAVE, VARIABLE 013036
    - CASTING, VARIABLE SHEAVE 013069
    - BUSHING 012562
    - HOUSING, THROWOUT BEARING 012986
    - CASTING, THROWOUT BEARING HOUSING 012985
    - PULLEY 013079
    - KEY, STEEL 001100
    - BEARING 006855
  - OUTPUT SHAFT ASSEMBLY 013068
    - OUTPUT SHAFT 013048
    - SHEAVE, FIXED 013063
    - CASTING, FIXED SHEAVE 014676
    - SHEAVE, VARIABLE 013036
    - CASTING, VARIABLE SHEAVE 013069
    - BUSHING 012562
    - TIMING PULLEY, MODIFIED 013721
    - TIMING PULLEY 012992
    - BEAM CHOPPER 006875
    - SPRING 013049
    - BEARING 006853
  - SPINDLE ASSY, SPEED CHANGE 013066
    - SPINDLE 012983
    - FORK 012994
    - YOKE 013045
    - BEARING 001535
    - SPROCKET, MODIFIED 013059
    - SPROCKET 001423
    - P.C.B. ASSY, T.M. CONTROL 013013 A1
      - P.C.B. T.M. CONTROL 013042
    - BRACKET P.C.B. 013375
    - KEY, STEEL 001803
    - SPRING, RETAINER 012556
    - BEARING 006855
  - HEADFRAME 012984
    - CASTING, HEADFRAME 012809
    - TACHOMETER ASSEMBLY 013077 A3
      - P.C.B. ASSY, OPTICAL INTERR. 013075
      - P.C.B., OPTICAL INTERRUPTER 013074
      - WIRE SET 013394 W1
      - BRACKET, TACHOMETER 013078
      - HARNESS ASSY, BELT SWITCH 013382 W4
      - WIRE SET, BELT SWITCH 013381
      - HARNESS ASSY, FAN 013384 W3
      - WIRE SET, FAN 013383
      - PULLEY 012993
  - GRADE POT ASSEMBLY 013089 R1
    - WIRE SET, GRADE POT 013392
    - BRACKET, GRADE POT 013061
    - SPROCKET, GRADE POT 001494
    - CONTACTOR 013086 K1
    - HARNESS ASSY, CONTACTOR 013387 W1
    - WIRE SET, CONTACTOR 013380
    - FAN, COOLING F1 011738
    - BRACKET, FAN 013374
    - TRANSFORMER ASSEMBLY T1 013677
      - TRANSFORMER 013087
      - HARNESS ASSY TRANSFORMER 013389
      - WIRE SET, TRANSFORMER 013388
  - PLATE ASSY, STRAIN RELIEF 014100 A4
    - PLATE, STRAIN RELIEF 013122
    - POWER CORD ASSY 013404
    - CABLE ASSEMBLY 013096
    - HARNESS ASSY, JACK 013391
    - WIRE SET, JACK 013390
    - BEARING CAP 013705
      - -002
    - TORQUE LIMITER 002288
    - WHEEL 002298
    - WASHER, SOUND ISOLAT. 014481
  - BRACKET ASSY, HANDRAIL 012991
    - ELEVATION SLOT COVER 013060
    - RACK GEAR 013081
    - PINION SHAFT 013044
    - BELT, VARIABLE SPEED 013062
    - V-BELT 003792
    - SPACER, STRAIN, RELIEF PLATE 014551
    - STUD, SPEED CHANGE 013751
    - KEY, STEEL 001100
    - WASHER, ISOLATION 013767

DRAWN	HP SCHMIDT	20 JUN 83
CHECKED	S.K. PLAHN	6-30-83
ENGR.		
QUAL.		
MFG.		
OTHER		

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
CARDIO EXERCISE TREADMILL, Q55

SIZE	MODEL	DWG. NO.	REV.
D	Q55	000208	

SCALE — DIST. CODE SHEET 4 OF 5

DWG. NO 000208 SH. 4 REV.

QP02-0018978

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

FROM SHT. 4

FINAL ASSY Q55 TREADMILL U2 000208-001

- DECK ASSEMBLY 012972
  - DRIVE PULLEY ASSEMBLY 013415
    - TUBE, PULLEY 013409
    - SHAFT, PULLEY 013401
    - SPROCKET 012966
    - BEARING 013419
    - BEARING 013420
    - IDLER PULLEY ASSEMBLY 013414
      - TUBE, PULLEY 013409
      - SHAFT, PULLEY 013401
      - BEARING 013419
  - FRAME ASSY, DECK WELDMENT 013028
    - TUBING, FRAME, SIDE 013031
    - TUBING, FRAME END 013030
    - TUBING, FRAME CENTER 013029
    - TUBING, FRAME CENTER 013029
    - CYLINDER ASSEMBLY 013373
      - BODY, CYLINDER 012959
      - PISTON, ADJUSTING 012961
    - RAIL, SIDE 013129
      - EXTRUSION, ALUMINUM 012371
  - WELDMENT, SIDE SUPPORT 013169
    - SIDE SUPPORT 013027
    - BRACKET, SIDE SUPPORT 013131
    - SLIDER BED 012969
    - DECK, PLYWOOD 013083
    - BELT, WALKING 012962
    - FOOT, DECK 012958
    - ROD, ADJUSTING 012960
    - END CAP 012964
    - END CAP, REAR 012963
  - BELT, TIMING 012957
  - SCREW ASSY, BELT ADJUST 005192
  - BRACKET, MICROSWITCH 013739
  - MICROSWITCH 006872
  - CABLE ASSY, BELT SWITCH 014508
  - EXTRUSION, RUBBER 013565
  - FAN, GUARD 009866
- HOOD ASSEMBLY 013015
  - HOOD, PANEL 012977
  - PANEL ASSY, RIGHT SIDE 012979
  - PANEL ASSY, LEFT SIDE 012978
  - KICK PLATE 013116
  - LOGO PLATE 013717
  - MOLDING 002305
  - FAN FILTER 012888
- HANDRAIL 012976
  - EXTRUSION, VINYL 012970
  - HANDGRIP, FABRIC 013802
  - BRACKET, GUARD 014702
  - PULLEY COVER 014768

☐ NOT RELEASED
☒ REL PROTOTYPE
☒ REL PREPRODUCTION
■ REL PRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± / .XXX ± / ANGLE ±

QUANTITY PER ASSEMBLY — CLASS CODE — VALUE CODE

DO NOT SCALE DRAWING PRINTS

DRAWN HP SCHMIDT 20JUN89 — CHECKED S.K.PLAHN 6-30-89 — ENGR. — QUAL. — MFG. — OTHER

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: CARDIO EXERCISE TREADMILL, Q55

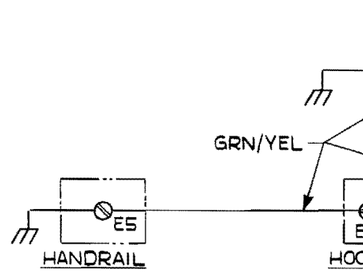
SIZE D | MODEL Q55 | DWG. NO. 000208 | REV.

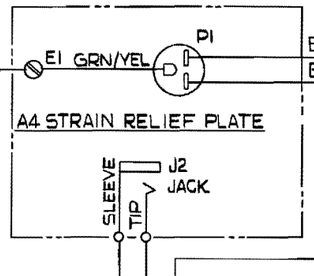
SCALE — | DIST. CODE | SHEET 5 OF 5

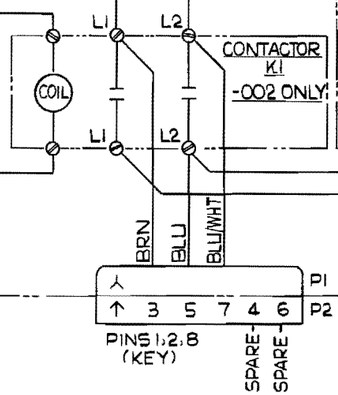
DWG. NO. 000208 SH. 5 REV.

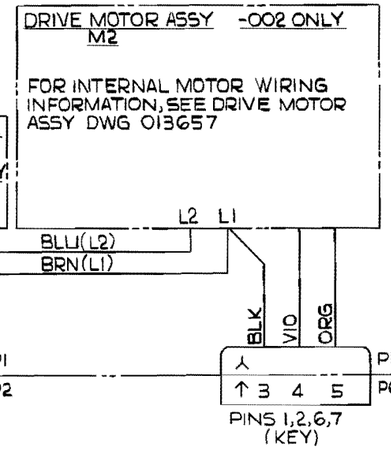
QF02-0016979

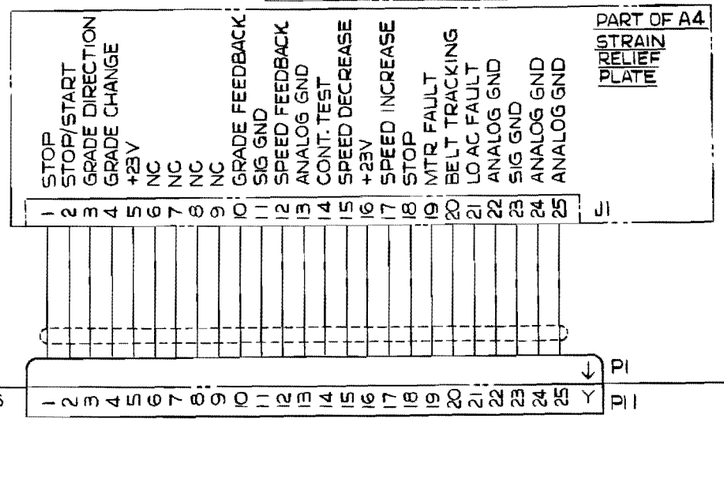
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

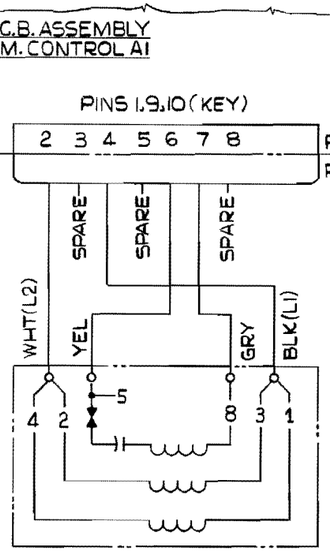






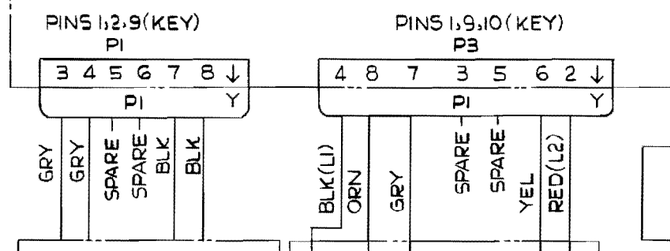


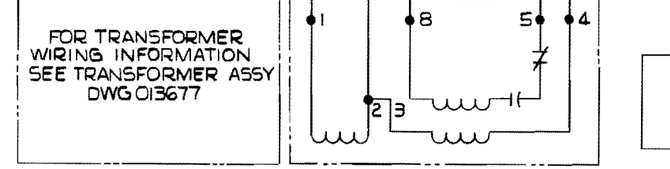




MOTOR ASSY, GRADE M1
DETAIL "D"
-004 ONLY
100V, 50HZ

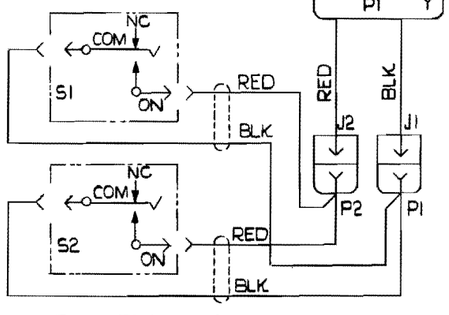
P.C.B. ASSEMBLY
T.M. CONTROL
A1



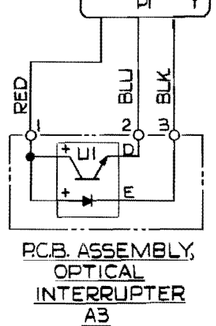


TRANSFORMER ASSY
T1

MOTOR ASSY, GRADE
M1 -002 ONLY



BELT TRACKING



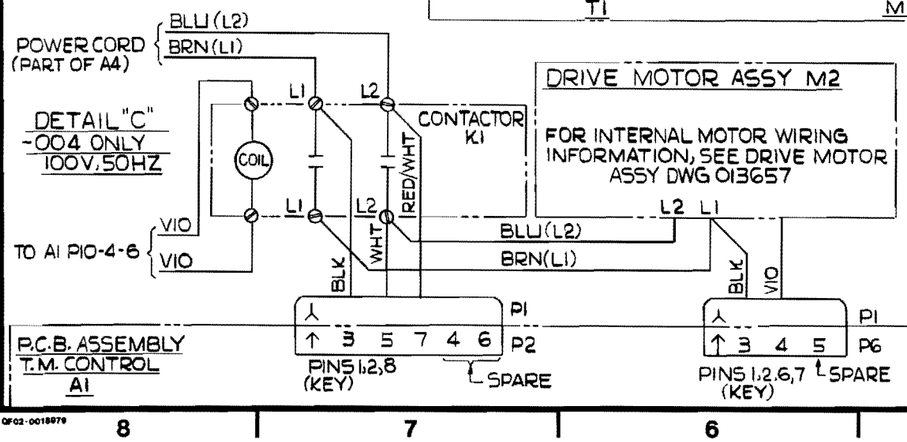
P.C.B. ASSEMBLY,
OPTICAL
INTERRUPTER
A3

GRADE POT ASSY
R1

FAN
F1

MOTOR ASSY,
SPEED CHANGE A2

UNIT 2



-002 (230V, 50HZ, 1Ø) SHOWN ABOVE
-004 (100V, 50HZ, 1Ø) AS NOTED (DETAIL C & D)

(-001, -003, -005 & -006 ARE SHOWN ON SHT. 1)

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

PARTS LIST

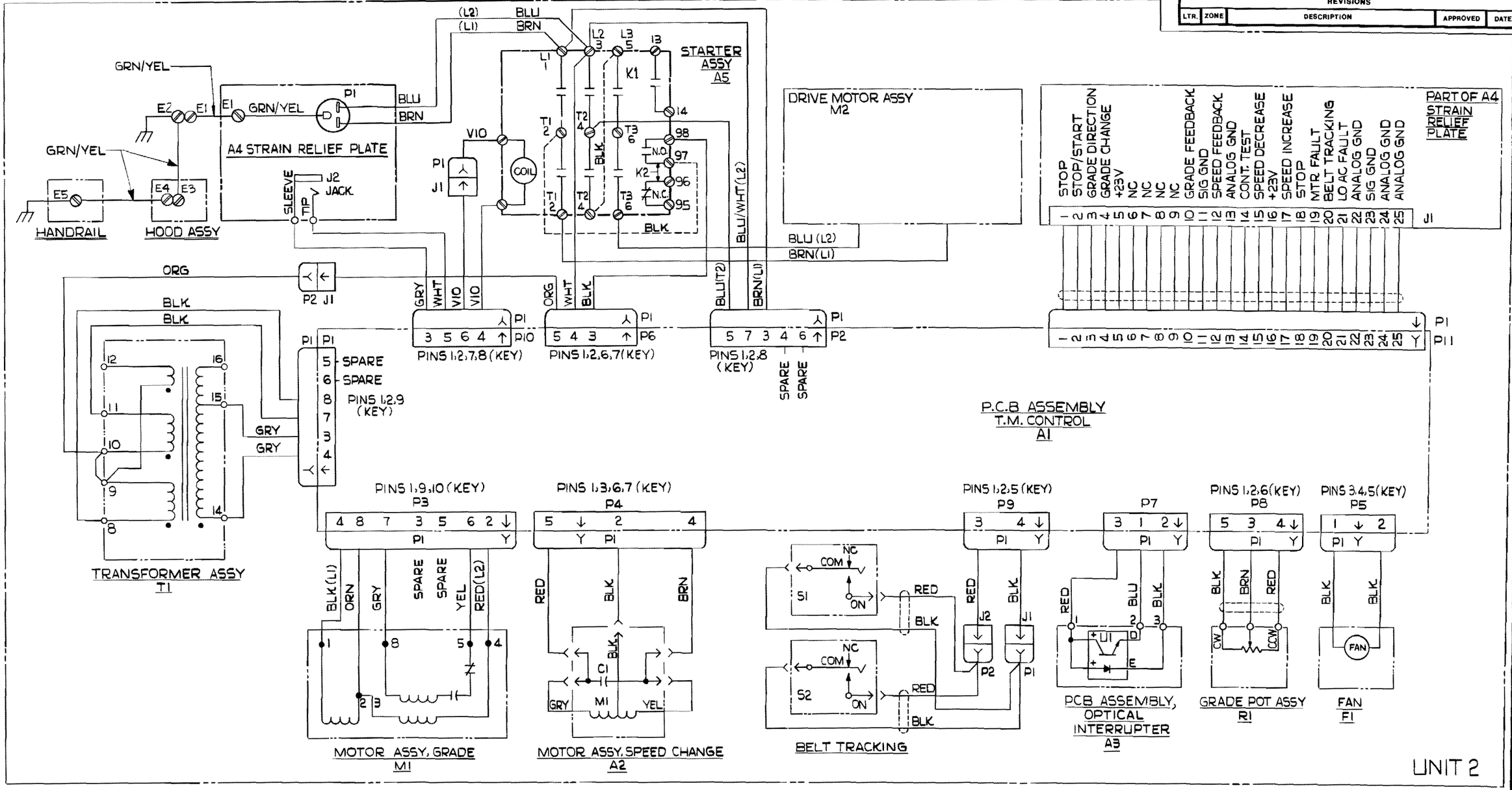
ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

UNLESS OTHERWISE SPECIFIED	DRAWN H.P. SCHMIDT	30 JUN 83	Quinton 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
ALL DIM. ARE IN INCHES TOL. .XX ± .XXX ± ANGLE ±	CHECKED S.K. PLAHN	7-15-83	TITLE CARDIO EXERCISE TREADMILL Q55 SCHEMATIC
	ENGR. Dave Edwards	7/19/83	
	QUAL. Randy Wallis	7-19-83	
QUANTITY PER ASSEMBLY	MFG.	7-19-83	SIZE D MODEL Q55 DWG. NO. 000208-201 REV. —
CLASS CODE —	OTHER		SCALE — DIST. CODE SHEET 2 OF 2
VALUE CODE —			
DO NOT SCALE DRAWING PRINTS			

DWG NO. 000208-201 SH. 2 REV.

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



-002 (220-240 VAC, 50 HZ, 1Ø)

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST			

UNLESS OTHERWISE SPECIFIED	DRAWN LP SCHMIDT	3JUN83	Quinton 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
ALL DIM. ARE IN INCHES TOL. .XX ± .XXX ± ANGLE ±	CHECKED S.K. PLAHN	6.20.83	TITLE CARDIO EXERCISE TREADMILL Q65 SCHEMATIC
	ENGR. Dave Edwards	7/19/83	
	QUAL. Randy Wahl	7-19-83	
CLASS CODE	MFG.	7.19.83	SIZE D MODEL Q65 DWG. NO. 000221-201 REV.
VALUE CODE	OTHER		SCALE — DIST. CODE SHEET 2 OF 2
QUANTITY PER ASSEMBLY	DO NOT SCALE DRAWING PRINTS		

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

DWG. NO. 000221-201 SH. 2 REV.

QF02-0018979

NOTES:
SEE SHEET 2,3&4

REVISIONS

LTR	ZONE	DESCRIPTION	APPROVED	DATE
E	SHT 1 SHTS 2,3&4 SHTS 2,3,4	1) P/L ITEM 63&79 PART NO WAS 014620-001 ITEM 77 PART NO WAS 002136-001 2) PICTURE REVISED PER ARTWORK 013042-002 REV B. (HEATSINK OF VR1 AND Q3 AND E7 TO E18 RELOCATED) 3) ADDED FLAGNOTE 8 EFF PT: VII DISP: USE	Dave Edwards	13 APR 83 4-18-83 4-19-83
F		ADDED Q65 INFO. TO APPLICATION BLOCK EFF. PT: VIII, DISP: RCRD. CHNG. ADDED ITEM 85 AND FLAGNOTE 9 EFF PT: II DISP: REWORK	Dave Edwards	6/2/83 5-26-83 6-7-83
G	P/L & SHTS. 2,3,4	C/N: 4066 ADDED C22 TO ITEM 41 EFF PT: VII DISP: REWORK	B Bulc	10-5-83

REVISIONS

LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		1) ITEM 50 IS 013223-002 WAS 013220-002 (2) ADDED 8 TO SH. 2, 8 SH 3, 8 SH 4. (3) CHANGES TO P/L: R1 WAS R2, R2 WAS R1, ITEM 79, 002134-001 WAS 013647-001, ITEM 77, 002135-001 WAS 013699-001, ITEM 63, 002134-001 WAS 013647-001. QUANITY FOR ITEM; 71 IS 4 WAS 3, ITEM 69 IS 4 WAS 3, ITEM 66 IS 2 WAS 1. EFF PT. VIII DISP. RECORD CHANGE	D Edwards	6/15/82
B		1) DELETED ITEM 67, 010827-201 SCREW. (2) ITEM 69'S QUANTITY WAS 4 EACH 3) ITEM 71'S QUANTITY WAS 4 EACH (4) ITEM 73 WAS 005685-001 HEATSINK COMPOUND. 5) REMOVED C15 FROM SHT 2,3 & 4. 6) SHT 2,3, & 4 REMOVED ITEMS 67,69 & 71. 7) ADDED ITEM 84 TO P/L & DWG EFF PT: IX DISP: RECORD CHANGE	B Bulc	8-10-82 6/25/82 9-3-82
C		1) ITEM 62 P/N WAS 013640, 63 WAS 002134, 64 WAS 001557, 76 WAS 001557, 77 WAS 2135, 78 WAS 013646, 79 WAS 002134, 80 WAS 001557. EFF PT: VII DISP: REWORK	Dave Edwards	12/15/82
D		1) ITEM 20 WAS 009627-226, 221 K 2) ITEM 16 WAS 010814-033 210K EFF PT VII DISP: USE	Dave Edwards	12-22-82 12/29/82

PART LIST

-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
1	1	1	85	012183-058	RESISTOR CARBON FILM	680 OHMS, 1/4 W, 5%	R53
6	6	6	84	012913-001	TERMINAL		TP1,2,3,4,5,6
.01	.01	.01	83	007202-001	ADHESIVE, ELEC. GRADE	RTV. SILICONE	
			82				
.01	.01	.01	81	010612-005	WIRE, BUSS	#22 AWG	
1	-	-	80	003016-001	FUSE, SLOW BLOW	3AG, 1AMP, 250V	F6
1	-	-	79	014741-001		3.2AMP,	F3
1	-	-	78	004351-001		.5AMP,	F1
-	1	-	77	014740-001		6.25AMP,	F3
-	2	-	76	003016-001	FUSE, SLOW BLOW	3AG, 1AMP, 250V	F1, F6
/	-	-	75	-003	P.C.B. ASSY, T.M. CONTROL		
-	/	-	74	-002	P.C.B. ASSY, T.M. CONTROL		
1	1	1	73	009694-003	SILICONE PAD		
2	2	2	72	001767-001	NUT, HEX	#6-32	
2	2	2	71	008532-001	NUT, HEX	#4-40	
2	2	2	70	012029-005	WASHER, LOCK, INTERNAL	#6	
2	2	2	69	010511-003	WASHER, SPLIT LOCK	#4	
			68				
			67				
2	2	2	66	010766-001	SCREW, PAN HD	#4-40 X 3/8 LG	PHILLIPS REC
1	1	1	65	005957-001	WASHER, FLAT, NYLON		
-	-	2	64	003016-001	FUSE, SLOW BLOW	3AG 1A, 250V	F5, F6
-	-	2	63	014741-001	FUSE, SLOW BLOW	3AG 3.2A, 250V	F3, F4
-	-	2	62	004351-001	FUSE, SLOW BLOW	3AG .5A, 250V	F1, F2
2	2	2	61	013053-001	RELAY	1/8 HP 120V	K3, K4
2	2	2	60	003544-001	RELAY	1/6 HP, 250V	K1, K2
4	4	4	59	003438-001	RIVET, POP		
2	2	2	58	013052-001	SPRING, HOLD DOWN	FOR K3, K4	
2	2	2	57	003548-001	SPRING, HOLD DOWN	FOR K1, K2	
2	2	2	56	013054-001	SOCKET, RELAY	FOR K3, K4	
2	2	2	55	001811-001	SOCKET, RELAY	FOR K1, K2	
1	1	1	54	013361-001	HEATSINK	TO-3	
6	6	12	53	003243-001	CLIP, FUSE	3AG	
1	1	1	52	013001-001	CONNECTOR, PLUG, PCB	25 PIN, STRAIGHT	P11
1	1	1	51	013139-002	HEADER, STRAIGHT POST	3 PIN	P8
1	1	1	50	013223-002		3 PIN	P7
2	2	2	49	013138-001		2 PIN	P5, P9
2	2	2	48	-003		4 PIN	P4, P6
1	1	1	47	-006		7 PIN	P3
2	2	2	46	-004		5 PIN	P2, P10
1	1	1	45	013138-005	HEADER, STRAIGHT POST	6 PIN	P1
1	1	1	44	009359-001	CAPACITOR, ELCTLT	22 MFD, 35 VDC	C21
1	1	1	43	012923-021	CERAMIC	.022 MFD, 50 VDC	C7
2	2	2	42	012923-016	CERAMIC	.0033 MFD, 50 VDC	C6, C8
5	5	5	41	012923-025	CERAMIC	.1 MFD, 50 VDC	C5,9,11,12,17,22
2	2	2	40	011508-001	ELCTLT	3.3 MFD, 15 VDC	C4, C16
1	1	1	39	005321-001	ELCTLT	4.7 MFD 35V	C3
7	7	7	38	012923-027	CERAMIC	.22 MFD 50VDC	C2,10,13,14,18,19,20
1	1	1	37	013055-001	CAPACITOR, ELCTLT	2200 MFD, 50 VDC	C1
4	4	4	36	012210-001	DIODE, LIGHT EMITTING	MV 55A	CR5,6,9,10
9	9	9	35	011697-001	DIODE, SIGNAL	1N4148	CR3,4,11,12,13,14,16,18,19
6	6	6	34	001634-001	DIODE, RECTIFIER	1N4005	CR1,2,7,15,17,20
2	2	2	33	012997-001	RESISTOR	15K, 1W, 5%	R45, R46
1	1	1	32	012182-070	RESISTOR, CARBON FILM	2.2K, 1/2W, 5%	R41

QUANTITY PER ASSEMBLY

PARTS LIST

-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
9	9	9	31	012183-082	RESISTOR, CARBON FILM	6.8K, 1/4W, 5%	R34,37,38,39,40,42,44,50,51
1	1	1	30	012998-001	POT, TRIM	10 OHM, 1 TURN	R29
2	2	2	29	010814-069	RESISTOR, METAL FILM	499K 1/8W, 1%	R24, R25
1	1	1	28	009140-001	POT, TRIM	500K, 1 TURN	R23
1	1	1	27	012183-074	RESISTOR, CARBON FILM	33K, 1/4W, 5%	R19
1	1	1	26	010467-181	METAL FILM	750 OHM, 1/4W, 1%	R18
1	1	1	25	012182-050	CARBON FILM	330 OHM, 1/2W, 5%	R17
2	2	2	24	012183-110	CARBON FILM	100K 1/4W, 5%	R15, R48
3	3	3	23	012183-094	RESISTOR, CARBON FILM	22K 1/4W 5%	R14, R33, R43
2	2	2	22	012999-001	POT, TRIM	100 OHM 1 TURN	R13, R30
2	2	2	21	009627-114	RESISTOR, METAL FILM	150 OHM 1/8W, 1%	R12, R31
1	1	1	20	009627-193	METAL FILM	1K, 1/8W, 1%	R10
4	4	4	19	012183-138	CARBON FILM	1.5 MEG, 1/4W 5%	R9,11,28,47
1	1	1	18	009627-185	METAL FILM	825 OHM, 1/8W, 1%	R8
1	1	1	17	012183-154	CARBON FILM	6.8 MEG, 1/4W, 5%	R7
2	2	2	16	010814-013	METAL FILM	130K, 1/8W, 1%	R6, R22
7	7	7	15	012183-062	CARBON FILM	1K, 1/4W, 5%	R5,26,27,32,35,36,49
6	6	6	14	012183-086	CARBON FILM	10K 1/4W, 5%	R3,4,16,20,21,52
1	1	1	13	009627-251	METAL FILM	4.12K 1/8W 1%	R1
1	1	1	12	009627-134	RESISTOR, METAL FILM	243 OHM 1/8W, 1%	R2
1	1	1	11	008700-001	TRANSISTOR, NPN	2N4401	Q5
1	1	1	10	013648-001	TRANSISTOR, NPN	TIP 29A	Q3
3	3	3	9	010713-002	TRANSISTOR, PNP	PN 2907A	Q1,2,4
1	1	1	8	012995-001	REGULATOR, VOLTAGE	LM342-12	VR2
1	1	1	7	011631-003	REGULATOR, VOLTAGE	LM317K	VR1
1	1	1	6	005316-001	I.C., ISOLATOR, OPTICAL	4N25	U5
1	1	1	5	012101-008	I.C., DIGITAL	CD40106	U4
1	1	1	4	012133-001	I.C., MISC	ULN2003A	U3
1	1	1	3	010749-001	I.C., OP-AMP	TLO 72PC	U2
1	1	1	2	012996-001	I.C., LINEAR	LM339N	U1
1	1	1	1	013042-002	PCB, TM CONTROL		
—	—	/	—	-001	PCB ASSY, TM CONTROL		

QUANTITY PER ASSEMBLY

APPLICATION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
-003	014493	000221
-001	014493	000221
-003	000208	000208
-002	000208	000208
-001	000208	000208

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES — TOL. .XX ± / .XXX ± / ANGLE ±

DRAWN B. Bulc 5/4/82
CHECKED
ENGR. Dave Edwards 5/31/82
QUAL. Randy Walls
MFG.
OTHER

CLASS CODE PCBA
VALUE CODE Q55////

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

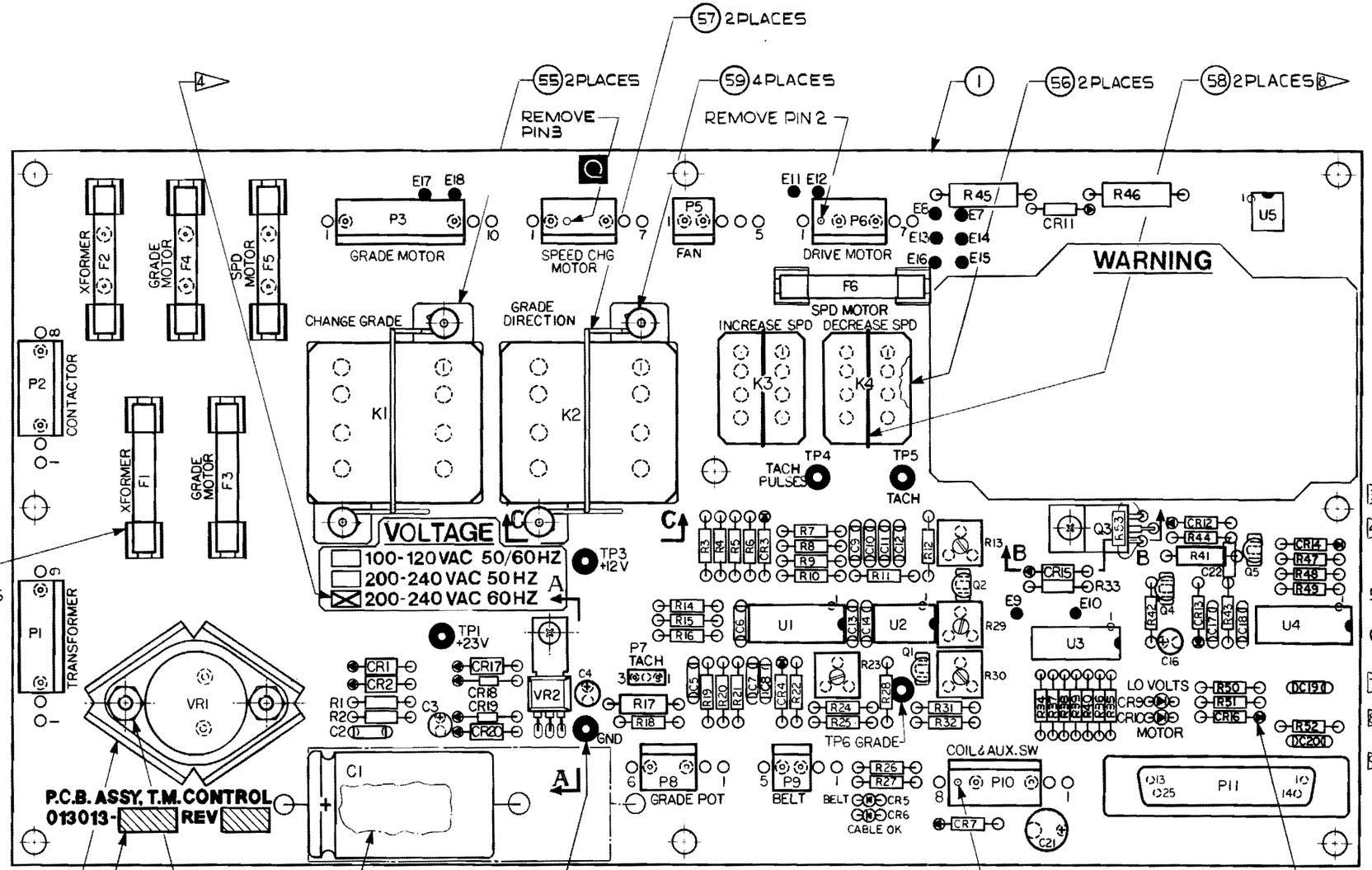
TITLE P.C.B. ASSEMBLY, T.M. CONTROL

SIZE D | MODEL Q55 Q65 | DWG. NO. 013013 | REV G
SCALE 2/1 | DIST. CODE | SHEET 1 OF 4

DO NOT SCALE DRAWING PRINTS

OF02-0018079

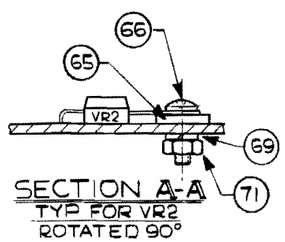
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



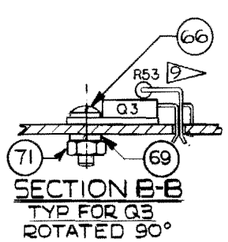
-001 SHOWN

JUMPER TABLE

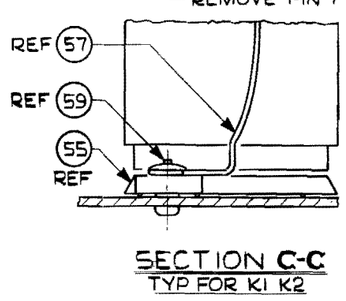
DASH NO.	JUMPERS REQ'D BETWEEN	JUMPERS NOT REQ'D BETWEEN
-001	—	E1-E2; E3-E4; E5-E6; E7-E8; E9-E10; E11-E12; E13-E14 E15-E16; E17-E18



SECTION A-A
TYP FOR VR2
ROTATED 90°



SECTION B-B
TYP FOR Q3
ROTATED 90°



SECTION C-C
TYP FOR K1 K2

NOTES:

1. MARK ASSY DASH NUMBER AND APPROPRIATE REV LETTER TO WHICH MFD IN AREA INDICATED.
2. APPLY ITEM 73 TO UNDERSIDE OF VR1 AND ASSEMBLE TO ITEM 54, HEATSINK, USING ITEMS 70 AND 72.
3. ⏭ DENOTES CATHODE END OF DIODE TYPE.
4. MARK VOLTAGE OPTION IN BLOCK INDICATED WITH CONTRASTING PERMANENT INK OR EQUIVALENT.
5. FOR SCHEMATIC DIAGRAM SEE 013013-201
6. SPARE REF DESIGNATIONS : CR8, C15
7. SECURE C1 BY APPLYING ITEM 83 BETWEEN C1 AND P.C.B.
8. ITEM 58, HOLD DOWN CLIP, MUST BE FROM THE SAME VENDOR AS ITEM 56, RELAY.
9. PRIOR TO FLOW SOLDER, ASSEMBLE Q3 AND R53 AS SHOWN IN SECTION B-B.

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

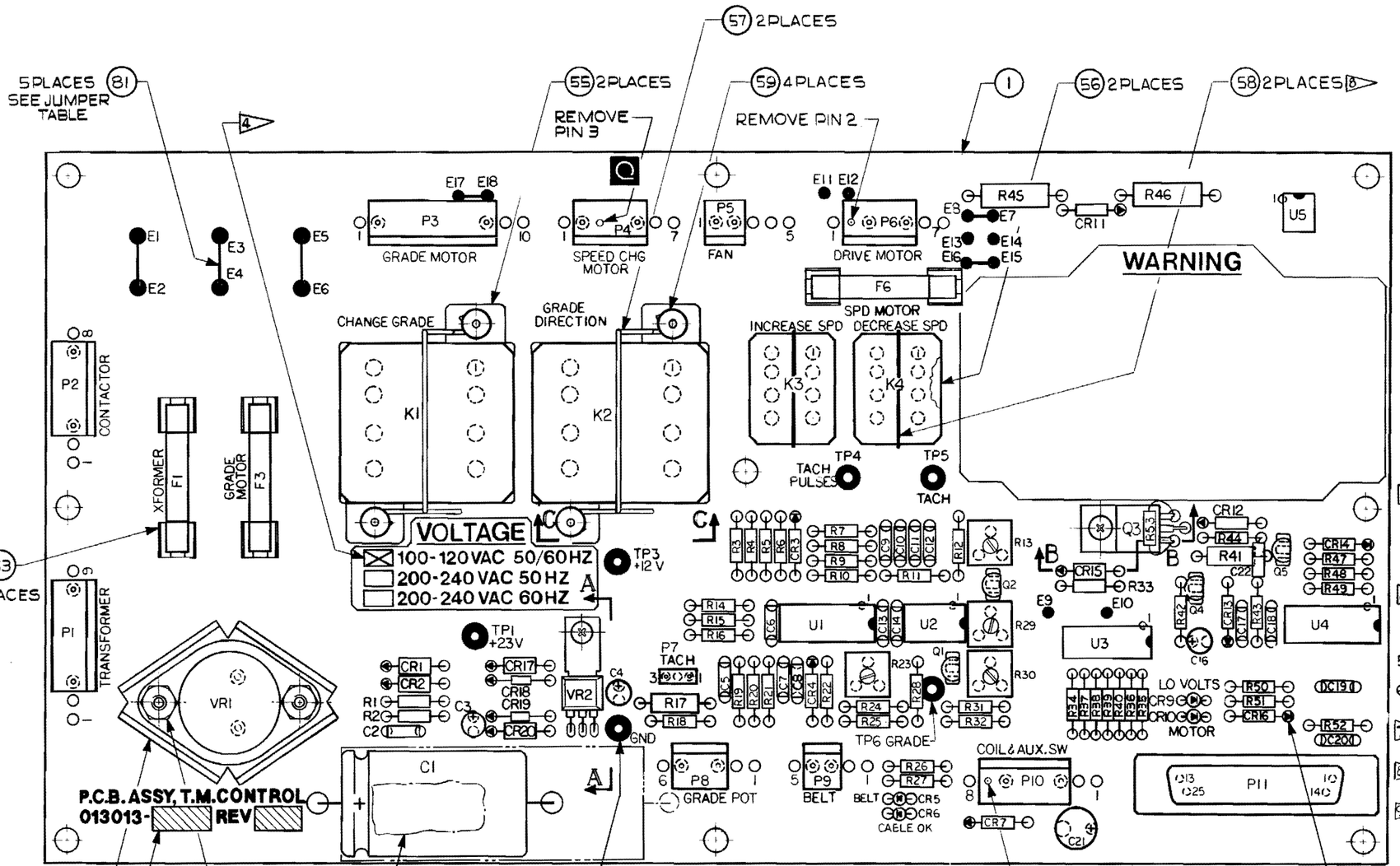
ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED	DRAWN	HF SCHMIDT	29 APR 82	Quinton 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
ALL DIM. ARE IN INCHES TOL. .XX ± .XXX ± ANGLE ±	CHECKED			TITLE P.C.B. ASSEMBLY, T.M. CONTROL
	ENGR.	Dave Edwards	5/21/82	
	QUAL.	Randy Walls	5/21/82	
QUANTITY PER ASSEMBLY	MFG.			SIZE D MODEL Q55 DWG. NO. 013013 REV. G
CLASS CODE	OTHER			SCALE 2/1 DIST. CODE SHEET 2 OF 4
VALUE CODE				
DO NOT SCALE DRAWING PRINTS				

DWG. NO. 013013 SH. 2 REV. G

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



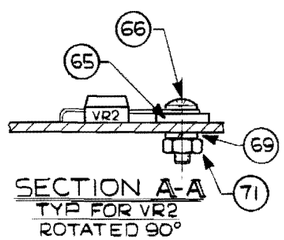
-002 SHOWN

NOTES:

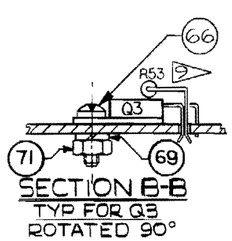
1. MARK ASSY DASH NUMBER AND APPROPRIATE REV LETTER TO WHICH MFD IN AREA INDICATED.
2. APPLY ITEM 73 TO UNDERSIDE OF VR1 AND ASSEMBLE TO ITEM 54, HEATSINK, USING ITEMS 70 AND 72.
3. ⊕ DENOTES CATHODE END OF DIODE TYPE.
4. MARK VOLTAGE OPTION IN BLOCK INDICATED WITH CONTRASTING PERMANENT INK OR EQUIVALENT.
5. FOR SCHEMATIC DIAGRAM SEE 013013-201
6. SPARE REF DESIGNATIONS: CR8, C15.
7. SECURE C1 BY APPLYING ITEM 83 BETWEEN C1 AND P.C.B.
8. ITEM 58, HOLD DOWN CLIP, MUST BE FROM THE SAME VENDOR AS ITEM 56, RELAY.
9. PRIOR TO FLOW SOLDER, ASSEMBLE Q3 AND R53 AS SHOWN IN SECTION B-B.

JUMPER TABLE

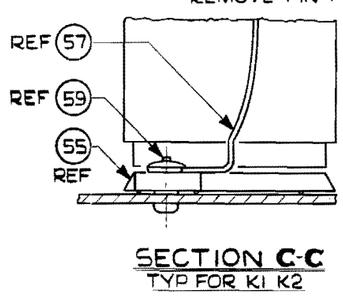
DASH NO.	JUMPERS REQ'D BETWEEN:	JUMPERS NOT REQD BETWEEN:
-002	E1-E2, E15-E16 E3-E4 E17-E18 E5-E6 E7-E8	E9-E10 E11-E12 E13-E14



SECTION A-A
TYP FOR VR2
ROTATED 90°



SECTION B-B
TYP FOR Q3
ROTATED 90°



SECTION C-C
TYP FOR K1 K2

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

PARTS LIST

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES
TOL. XX ±, .XXX ±, ANGLE ±

DRAWN H.F. SCHMIDT 28APR82
CHECKED
ENGR. Dave Edwards 5/21/82
QUAL. Randy Wells 5-21-82
MFG. Gary K 5-21-82
OTHER

CLASS CODE
VALUE CODE
QUANTITY PER ASSEMBLY
DO NOT SCALE DRAWING PRINTS

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: P.C.B. ASSEMBLY, T.M. CONTROL

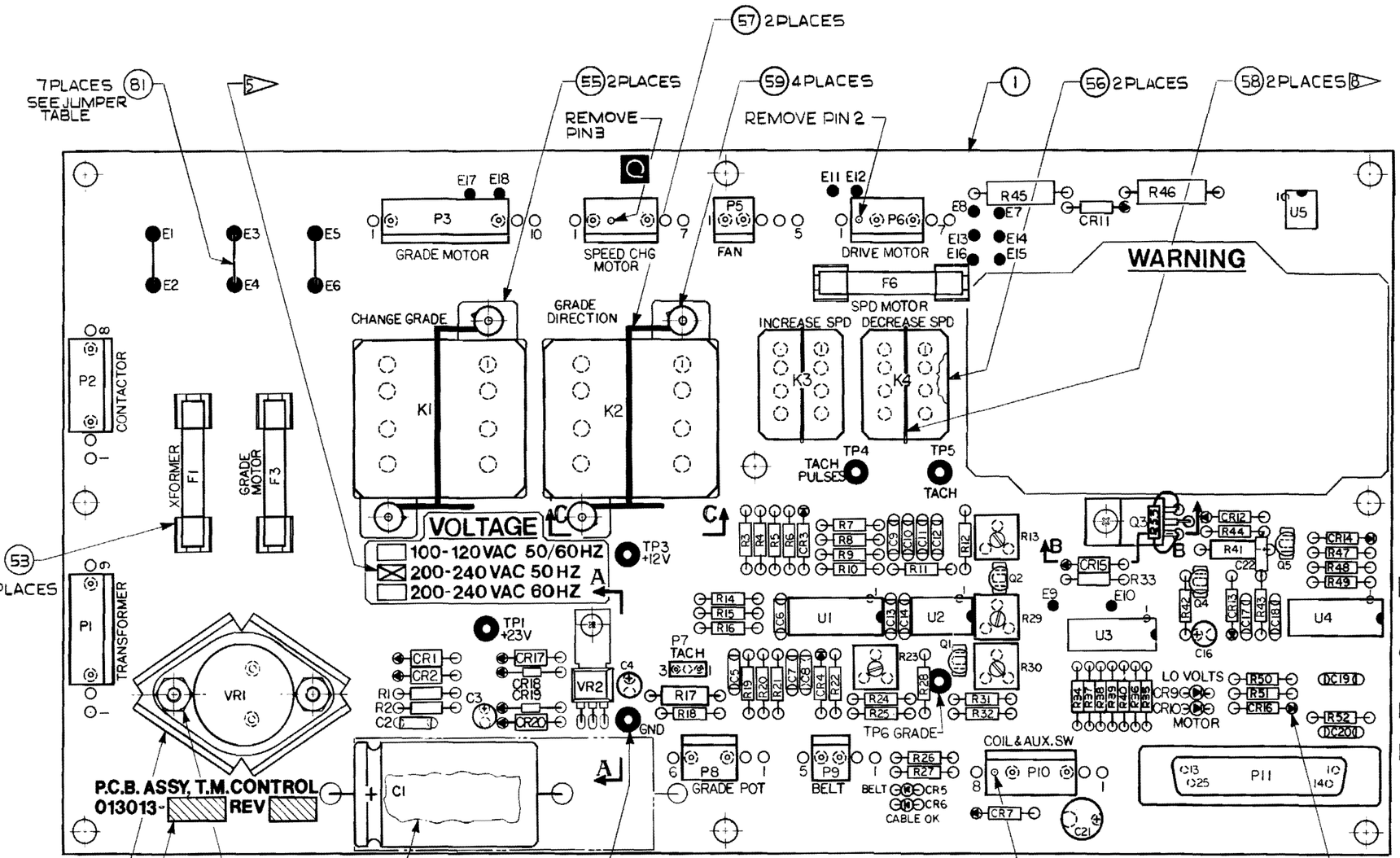
SIZE	MODEL	DWG. NO.	REV.
D	Q55	013013	G

SCALE 2/1 | DIST. CODE | SHEET 3 OF 4

DWG. NO. 013013 SH. 3 REV. G

QF02-0018979

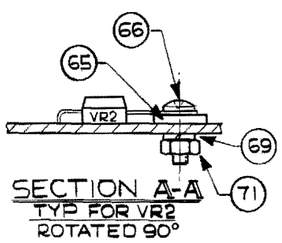
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



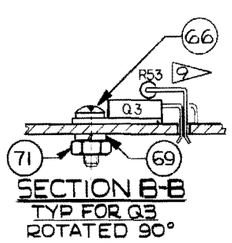
-003 SHOWN

JUMPER TABLE

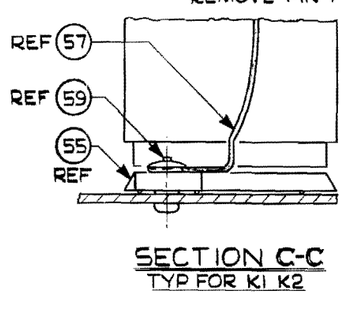
DASH NO.	JUMPERS REQ'D BETWEEN	JUMPERS NOT REQD BETWEEN
-003	E1-E2 E3-E4 E5-E6	E7-E8 E15-E16 E9-E10 E17-E18 E11-E12 E13-E14



SECTION A-A
TYP FOR VR2
ROTATED 90°



SECTION B-B
TYP FOR Q3
ROTATED 90°



SECTION C-C
TYP FOR K1 K2

NOTES:

1. MARK ASSY DASH NUMBER AND APPROPRIATE REV LETTER TO WHICH MFD IN AREA INDICATED.
2. APPLY ITEM 73 TO UNDERSIDE OF VR1 AND ASSEMBLE TO ITEM 54, HEATSINK, USING ITEMS 70 AND 72.
3. ⊕ DENOTES CATHODE END OF DIODE TYPE.
4. SECURE C1 BY APPLYING ITEM 83 BETWEEN C1 AND P.C.B.
5. MARK VOLTAGE OPTION IN BLOCK INDICATED WITH CONTRASTING PERMANENT INK OR EQUIVALENT.
6. FOR SCHEMATIC DIAGRAM SEE 013013-201
7. SPARE REF DESIGNATIONS: CR8, C15.
8. ITEM 58: (HOLD DOWN CLIP) MUST BE FROM THE SAME VENDOR AS ITEM 56, RELAY
9. PRIOR TO FLOW SOLDER, ASSEMBLE Q3 AND R53 AS SHOWN IN SECTION B-B.

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

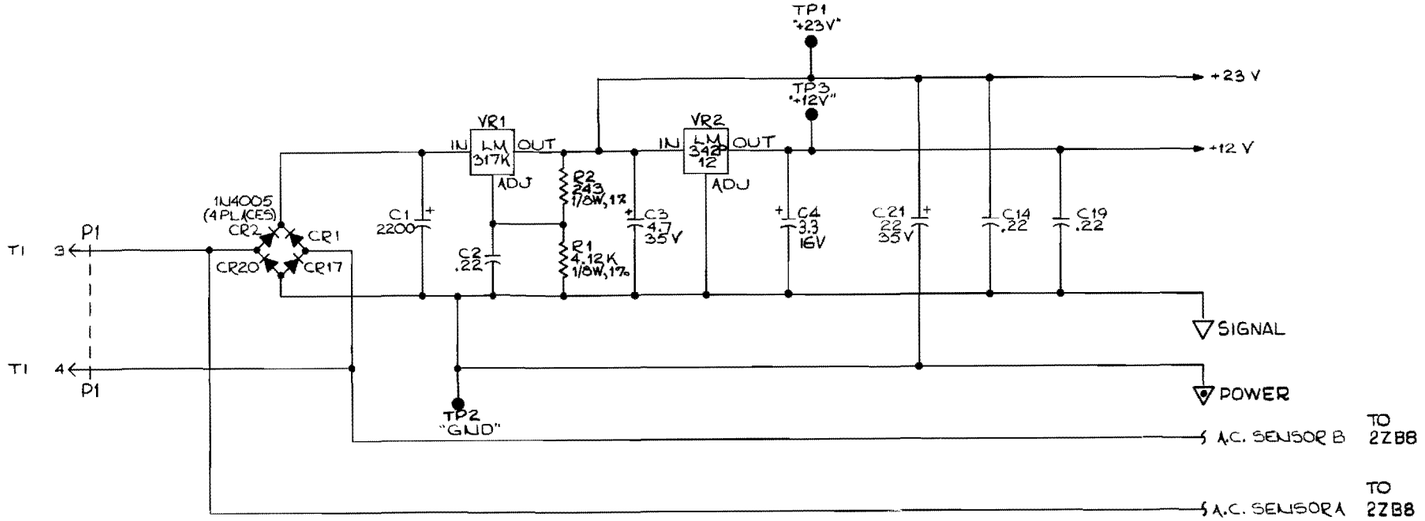
PARTS LIST

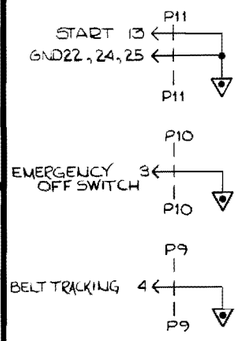
UNLESS OTHERWISE SPECIFIED	DRAWN W. Schmidt	29 APR 82	Quinton 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
ALL DIM. ARE IN INCHES TOL. .XX ± .XXX ± ANGLE ±	CHECKED		TITLE P.C.B. ASSEMBLY, T.M. CONTROL
CLASS CODE	ENGR. Dave Edwards	5/21/82	
VALUE CODE	QUAL.		
QUANTITY PER ASSEMBLY	MFG.		SIZE D MODEL Q55 DWG. NO. 013013 REV. G
DO NOT SCALE DRAWING PRINTS	OTHER		SCALE 2/1 DIST. CODE SHEET 4 OF 4

DWG. NO. 013013 SH 4 REV G

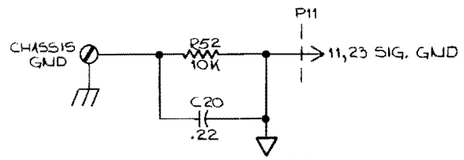
QF02-0016979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		1) ADDED NOTE 3. (2) SHT 2: REMOVED NORMAL FROM F1 & F5. (3) REMOVED SLOW BLOW FROM F3,4 AND ADDED 3.2 @ 6.25. EFF PT: VIII DISP: NONE	B Beagle D Edwards	12-10-82 12/15/82 12-16
B	D-1 C-7	1) SHT 2: E POINTS 17 & 18 FOR -002 ADDED. 2) SHT 2: CONNECTION FROM E7 REMOVED. CONNECTION FROM E7 TO E15 ADDED. EFF PT: VIII DISP: NONE	D Edwards	13APR83 4/19/83 4-N-83
C	B-4 C-8 C-1 C-2 C-8 A-7	SHT 1: 1) ADDED "P10, PIN 6 (CONTACTOR 2) P11, PIN 5,16, ADDED +23V". 3) P11, ADDED PIN "13 START"; GND. SHT 2: 4) P10, 4, 15 CONTACTOR WAS K5 COIL. (5) ADDED R53, 680 OHMS (6) P11, PIN 2,1,18 ADDED "START/STOP, STOP". (7) ADDED "P7" (8) ADDED Q60 EFF PT: VIII DISP: NONE	Dave Edwards	6-1-83 6/2/83 6-7-83
D	SHT 2 C-3	ADDED C22 EFF PT: VIII DISP: NONE		

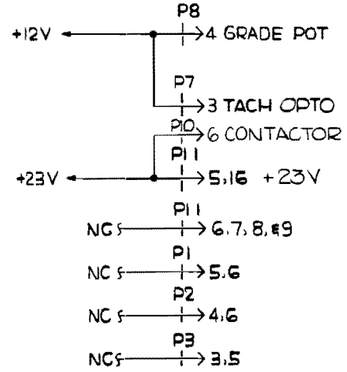


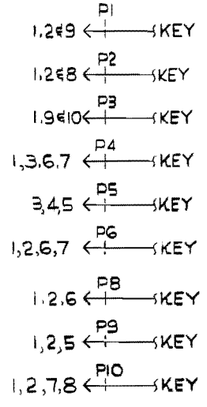


-001 (200-240 VAC, 60 HZ)
-002 (100-120 VAC, 50/60 HZ) > SHOWN
-003 (200-240 VAC, 50 HZ)



SPARE RELAY CONTACT
3 (NO)
5 K4
1 (NC)





POWER SUPPLY TABLE				
REFERENCE DESIGNATION	+23 V	+12 V	SIGNAL	POWER
U1	3		12	
U2	8		4	
U3	9			8
U4		14		7

NOTES:

1. ALL RESISTORS ARE 1/4 W, 5% UNLESS OTHERWISE SPECIFIED. ALL VALUES ARE IN OHMS.
2. ALL CAPACITORS ARE 50 V UNLESS OTHERWISE SPECIFIED. ALL VALUES ARE IN MICROFARADS.
3. ALL FUSES ARE SLOW BLOW TYPE UNLESS OTHERWISE SPECIFIED.

-201	000208	000208
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
	PARTS LIST			

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES TOL. .XX ±, .XXX ±, ANGLE ±
QUANTITY PER ASSEMBLY
CLASS CODE SCHE
VALUE CODE Q55 √√√
DO NOT SCALE DRAWING PRINTS

DRAWN 8/31/82
CHECKED 2SEP 82
ENGR. Dave Edwards 10/5/82
QUAL. 10/7/82
MFG. 10 Feb 84
OTHER

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

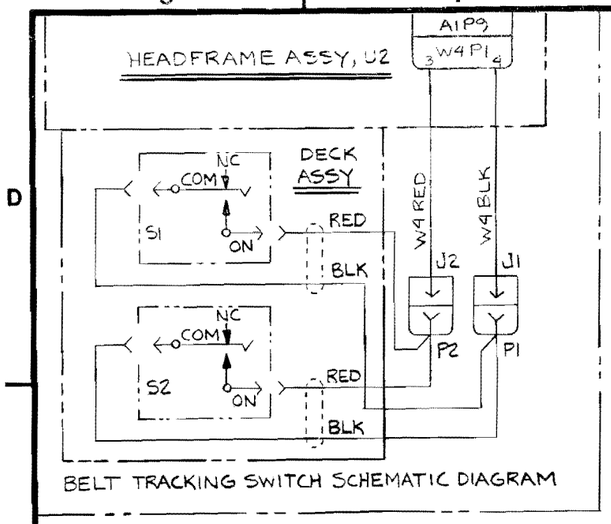
TITLE P.C.B. ASSEMBLY, T.M. CONTROL (SCHEMATIC)

SIZE D | MODEL 855 865 | DWG. NO. 013013-201 | REV. D
SCALE — | DIST. CODE | SHEET 1 OF 2

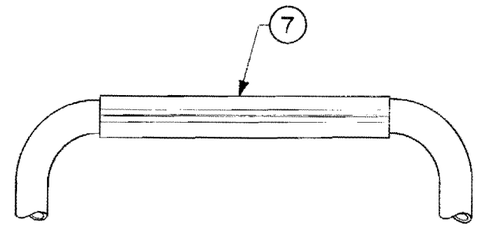
DWG. NO. 013013-201 SH 1 REV D

QF02-001897B

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



BELT TRACKING SWITCH SCHEMATIC DIAGRAM



VIEW A-A

-001 SHOWN,
-002, -005 SIMILAR EXCEPT AS NOTED ON SH. 3.

PREPRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
	PARTS LIST			

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES
TOL. .XX ± .XXX ± ANGLE ±

DRAWN HP SCHMIDT 18 MAY 83
CHECKED 6-3-83
ENGR.
QUAL.
MFG.
OTHER

QUANTITY PER ASSEMBLY
CLASS CODE
VALUE CODE

DO NOT SCALE DRAWING PRINTS

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
CARDIO EXERCISE TREADMILL
Q65

SIZE	MODEL	DWG. NO.	REV.
D	Q65	000221	

SCALE AS NOTED | DIST. CODE | SHEET 2 OF 5

DWG. NO. 000221 SH. 2 REV.

QF02-0018978

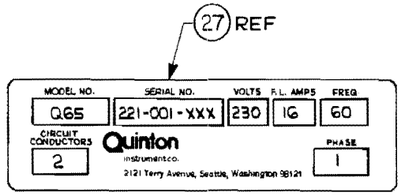
INDEX OF OPTIONS TABLE II				
DWG NO.		DASH NO.	DWG SIZE	OPTION TYPE
000221		-002	D	230V, 1 PHASE, 50 HZ
000221		-005	D	208V, 1 PHASE, 60 HZ
013689		-001	B	KIT, MASK SUPPORT
013690		-001	B	KIT, SHORT HANDRAIL
013691		-001	B	KIT, LONG HANDRAIL
013756		-001		EMERGENCY OFF SWITCH
000043		-002	C	ARM SUPPORT KIT

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

NOTES:

1. DASH NO'S 003, 004 & 006 ARE USED FOR FUTURE EXPANSION ONLY.
2. APPLY ITEM 29 (ADHESIVE, LOCTITE) TO SCREW THREADS WHERE APPLICABLE.
3. SEE DWG. 000221-201 FOR SCHEMATIC DIAGRAM.
4. REFERENCE DESIGNATION IS U2.

PREPRODUCTION



EXAMPLE OF 000221-001 NAMEPLATE MARKING, SEE TABLE I

PART NO.	MODEL NO.	SERIAL NO.	VOLTS	F.L. AMPS	FREQ.	CIRCUIT CONDUCTORS	PHASE
000221-005	Q65	221-005-XXX	208	16	60	2	1
000221-002	Q65	221-002-XXX	230	16	50	2	1
000221-001	Q65	221-001-XXX	230	16	60	2	1

TABLE I NAMEPLATE INFORMATION

-001, -002 & -005	MARKET	MARKET
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER						PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
.01			.01	.01	29	007403-001	ADHESIVE, LOCTITE	#242	
1			1	1	28	010011-015	LABEL, ADHESIVE	CAUTION	
1			1	1	27	010011-005	LABEL, ADHESIVE	NAMEPLATE	
2			2	2	26	014776-002	SPACER, ROUND	CLEARANCE FOR #10; .310 O.D. x .63 LG	
4			4	4	25	014776-001	SPACER, ROUND	CLEARANCE FOR #10; .310 O.D. x .25 LG	
2			2	2	24	002158-001	NUT, HEX	#10-32	
4			4	4	23	001575-001	NUT, HEX	#8-32	
1			1	1	22	001182-001	WASHER, EXTERNAL STAR	#10	
1			1	1	21	001182-002	" , EXTERNAL STAR	#8	
4			4	4	20	001164-006	" , FLAT	3/8	
6			6	6	19	001164-003	" , FLAT	#10	
4			4	4	18	001164-002	WASHER, FLAT	#8	
2			2	2	17	010824-324	SCREW, FLAT HD	#10-32 UNC x 4.0 LG	PHILLIPS REC
4			4	4	16	002035-001	WASHER, NYLON	#10 x .82° C'SK.	
2			2	2	15	003032-003	SCREW, OVAL HD	#10-32 UNC x 1.25 LG	
2			2	2	14	003032-002	" , OVAL HD	#10-32 UNC x .50 LG	
5			5	5	13	010827-204	" , MACH., PAN HD	#10-32 UNC x .50 LG	
5			5	5	12	010827-203	" , MACH., PAN HD	#8-32 UNC x .50 LG	PHILLIPS REC
4			4	4	11	010820-107	SCREW, CAP, HEX HD	3/8-16 UNC x 1.25 LG	
2			2	2	10	012970-002	EXTRUSION, VINYL		
1			1	1	9	014768-001	COVER, PULLEY		
1			1	1	8	014702-001	BRACKET, GUARD		
1			1	1	7	013802-001	HANDGRIP, FABRIC		
1			1	1	6	012976-001	HANDRAIL		
1			1	1	5	013015-002	HOOD ASSEMBLY		
1			1	1	4	014550-001	DECK ASSEMBLY		
1			–	–	3	014493-003	HEADFRAME ASSY	208V, 60HZ, 1Ø	
–			1	–	2	-002	"	230V, 50HZ, 1Ø	
–			–	1	1	014493-001	HEADFRAME ASSY	230V, 60HZ, 1Ø	
–			–	–	–	-006	CARDIO EXERCISE T.M.		1
/			–	–	–	-005	"	208V, 60HZ, 1Ø	
–			–	–	–	-004	"		1 2
–			–	–	–	-003	"		1 2
–			–	/	–	-002	"	230V, 50HZ, 1Ø	
–			–	–	–	-001	CARDIO EXERCISE T.M.	230V, 60HZ, 1Ø (STD)	

PARTS LIST

-006	-005	-004	-003	-002	-001
△		△	△		

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± .XXX ± ANGLE ±

QUANTITY PER ASSEMBLY

CLASS CODE FINA

VALUE CODE Q65VW

DRAWN LP SCHMIDT 18 MAY 83

CHECKED 5-3-83

ENGR. 6-3-83

QUAL. 7-1-83

MFG. 7-1-83

OTHER

DO NOT SCALE DRAWING PRINTS

Quinton 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373

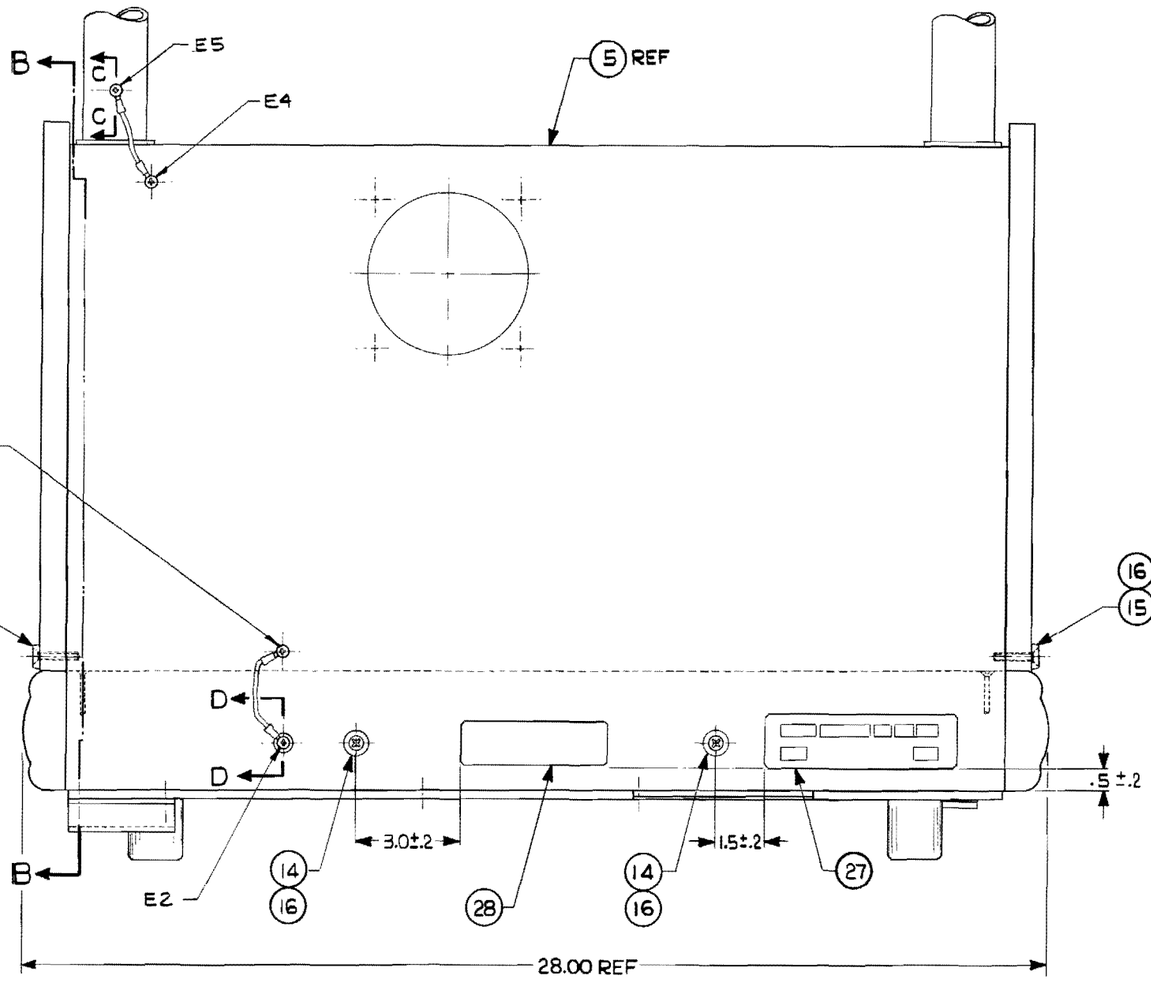
TITLE
CARDIO EXERCISE TREADMILL
Q65

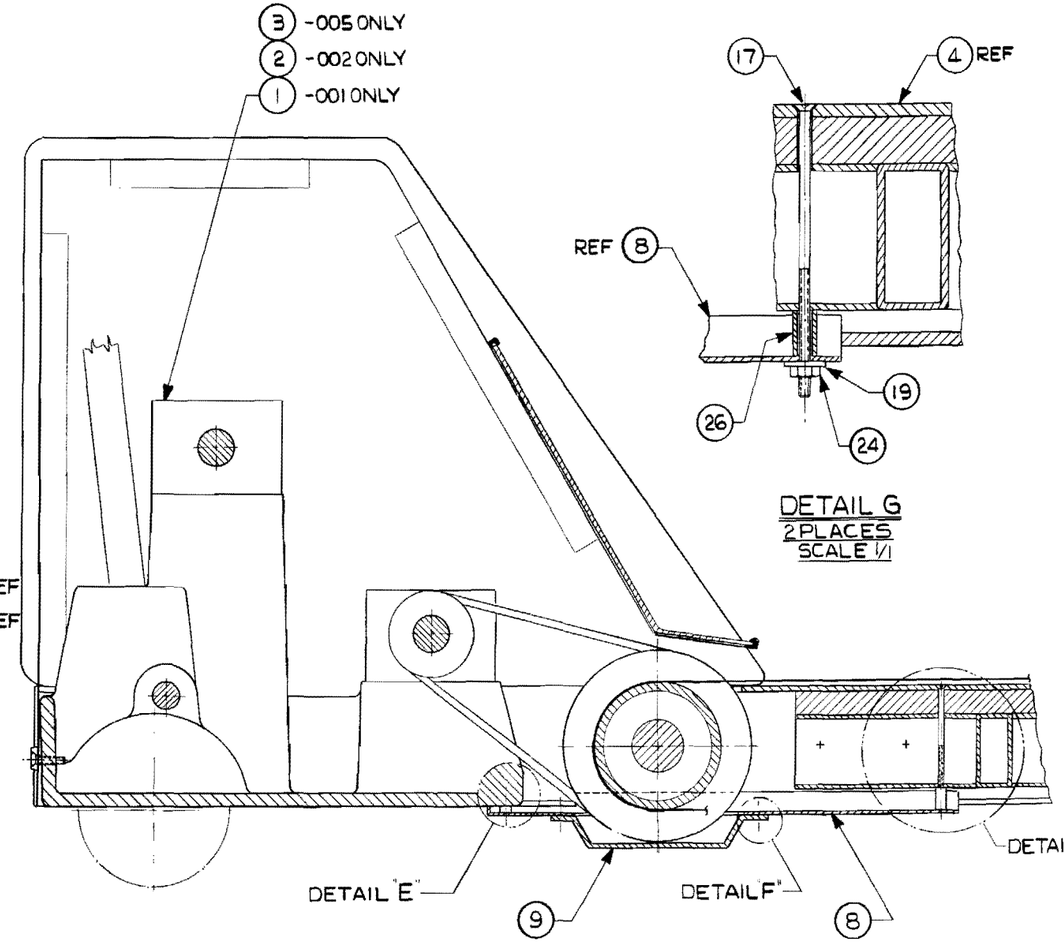
SIZE	MODEL	DWG. NO.	REV.
D	Q65	000221	
SCALE 4 & NOTED		DIST. CODE	SHEET 1 OF 5

DWG NO 000221 SH 1 REV

QF02-001897B

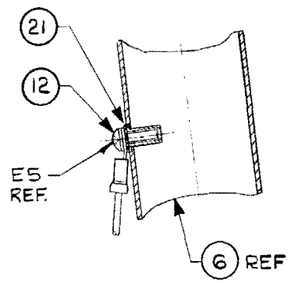
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



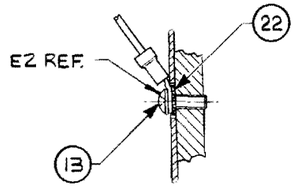


DETAIL G
2 PLACES
SCALE 1/1

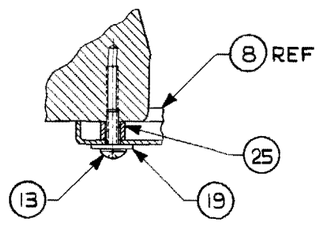
SECTION B-B
SCALE: 1/2



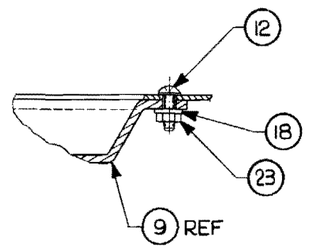
SECTION C-C
SCALE: 1/1



SECTION D-D
SCALE: 1/1



DETAIL E
4 PLACES
SCALE 1/1



DETAIL F
4 PLACES
SCALE 1/1

PREPRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
	PARTS LIST			

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± .XXX ± ANGLE ±

DRAWN WE SCHMIDT 18MAY83 | CHECKED 6.3.83 | ENGR. | QUAL. | MFG. | OTHER

CLASS CODE | VALUE CODE | QUANTITY PER ASSEMBLY

DO NOT SCALE DRAWING PRINTS

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
CARDIO EXCERCISE TREADMILL
Q65

SIZE	MODEL	DWG. NO.	REV.
D	Q65	000221	

SCALE 1/4 & NOTED | DIST. CODE | SHEET 3 OF 5

DWG. NO. 000221 SH. 3 REV.

OF02-0000079

REVISIONS				
LTR	ZONE	DESCRIPTION	APPROVED	DATE

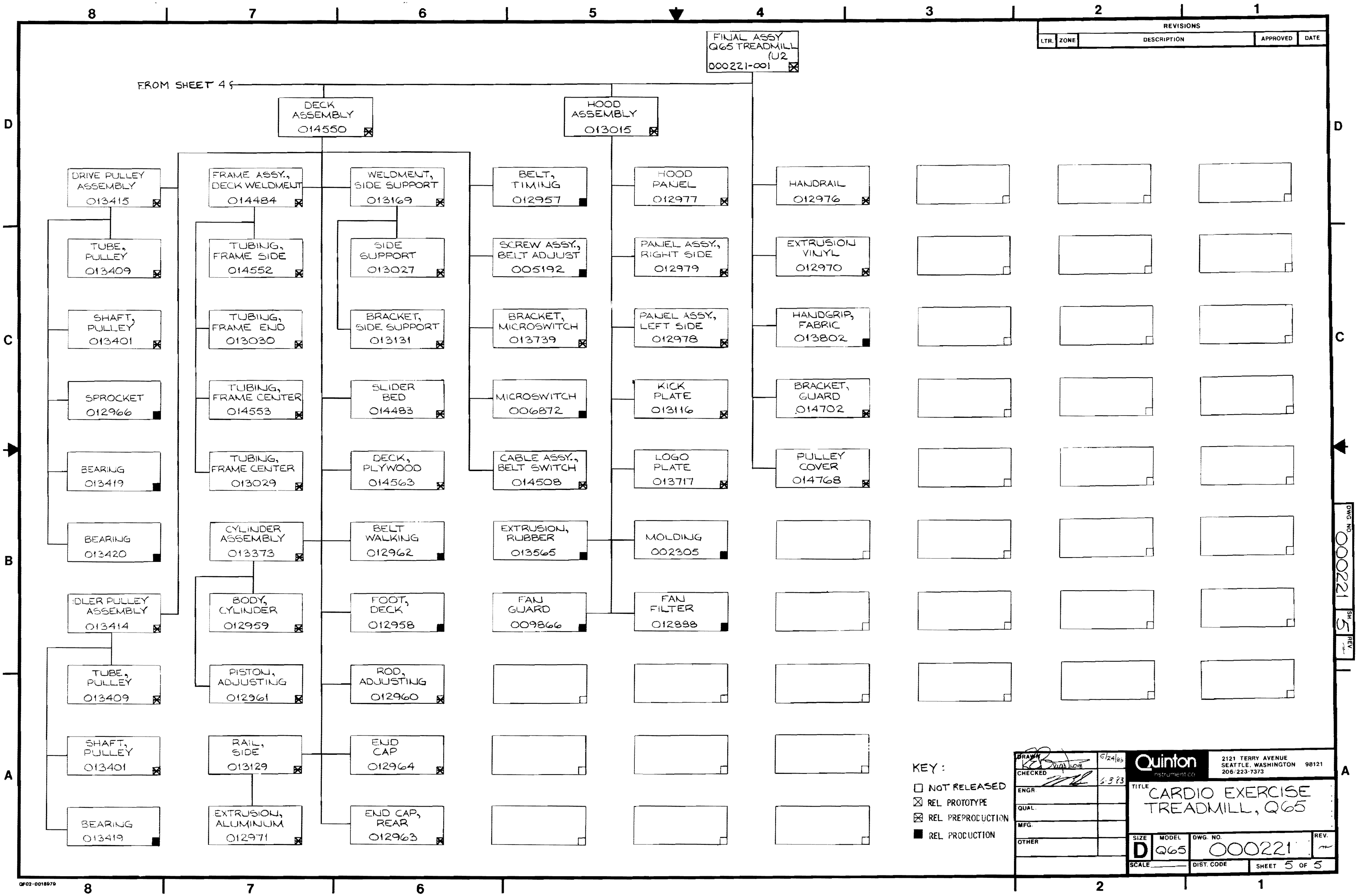
- HEADFRAME ASSEMBLY U2 014493-001
  - → TO SHEET 5
  - DRIVE MOTOR ASSEMBLY M2 014560
    - DRIVE MOTOR 014488
    - PULLEY 012993
    - KEY, STEEL 001100
    - HARNESS ASSY., DRIVE MOTOR 014497
      - WIRE SET, DRIVE MOTOR 014492
      - WIRE SET, DRIVE MOTOR 013393
      - ELEV. SPROCKET (TORQUE LIMITER) 002290
      - ELEV. SPROCKET (ELEV. POT SHAFT) 014561
      - HARNESS ASSY., SPD. CHG. MOTOR W2 013377
        - WIRE SET, SPD. CHG. MOTOR 013376
  - GRADE MOTOR ASSEMBLY M1 013673
    - MOTOR, RIGHT ANGLE 013137
    - SPROCKET 002289
    - KEY, STEEL 002143
    - HARNESS ASSY, GRADE MOTOR 013379
      - WIRE SET, GRADE MOTOR 013378
      - SPEED CHANGE MOTOR ASSY. 2A2 013067
        - SUB-ASSY., SPEED CHANGE MOTOR 013683
          - MOTOR 001040 OR: 009703
        - BRACKET, SPEED CHANGE MOTOR 012988
        - SPROCKET, CHAIN 010230
  - INPUT SHAFT ASSEMBLY 013064
    - INPUT SHAFT 013050
    - SHEAVE, FIXED 013063
    - CASTING, FIXED SHEAVE 013058
    - SHEAVE, VARIABLE 013036
      - CASTING, VARIABLE SHEAVE 013069
      - BUSHING 012562
      - HOUSING, THROWOUT BEARING 012986
        - CASTING, THROWOUT BEARING HOUSING 012985
      - PULLEY 013079
      - KEY, STEEL 001100
  - OUTPUT SHAFT ASSEMBLY 013068
    - OUTPUT SHAFT 013048
    - SHEAVE, FIXED 013063
    - CASTING, FIXED SHEAVE 013058
    - SHEAVE, VARIABLE 013036
      - CASTING, VARIABLE SHEAVE 013069
      - BUSHING 012562
      - TIMING PULLEY, MODIFIED 013721
        - TIMING PULLEY 012992
      - BEAM CHOPPER 006875
      - SPRING 013049
  - SPINDLE ASSY, SPEED CHANGE 013066
    - SPINDLE 012983
    - FORK 012994
    - YOKE 013045
    - SPROCKET, MODIFIED 013059
      - SPROCKET 011939 OR: 001422
      - P.C.B. ASSY., T.M. CONTROL A1 013013
        - P.C.B. T.M. CONTROL 013042
          - BRACKET, P.C.B. 013375
            - KEY, STEEL 001803
      - SPRING, RETAINER 012556
  - HEADFRAME 012984
    - CASTING, HEADFRAME 012809
    - TACHOMETER ASSEMBLY 013077 A3
      - P.C.B. ASSY., OPTICAL INTERR. 013075
      - P.C.B., OPTICAL INTERRUPTER 013074
        - WIRE SET 013394
        - BRACKET, TACHOMETER 013078
          - HARNESS ASSY., BELT SWITCH W4 013382
            - WIRE SET, BELT SWITCH 013381
            - HARNESS ASSY., FAN W3 013384
              - WIRE SET, FAN 013383
  - GRADE POT ASSEMBLY R1 013089
    - WIRE SET, GRADE POT 013392
    - BRACKET, GRADE POT 013061
    - SPROCKET, GRADE POT 001494
    - CONTACTOR K1 014486
      - HARNESS ASSY., CONTACTOR W1 013387
        - WIRE SET, CONTACTOR 013380
          - FAN, COOLING F1 011738
            - BRACKET, FAN 013374
            - TRANSFORMER ASSEMBLY T1 013677
              - TRANSFORMER 013087
              - HARNESS ASSY., TRANSFORMER T1W1 013389
                - WIRE SET, TRANSFORMER 013388
  - PLATE ASSY., STRAIN RELIEF A4 014100
    - PLATE, STRAIN RELIEF 013122
    - POWER CORD ASSY. 013404
    - CABLE ASSEMBLY 013096
    - HARNESS ASSY., JACK W5 013391
      - WIRE SET, JACK 013390
      - BEARING CAP 013705 -002
        - TORQUE LIMITER 002288
          - WHEEL 002298
          - WASHER, SOUND ISOLAT. 014481
            - TRANSFORMER 013087
  - BRACKET ASSY., HANDRAIL 012991
    - ELEVATION SLOT COVER 013060
    - RACK GEAR 014555
    - PINION SHAFT 013044
    - BELT, VARIABLE SPEED 013062
      - V-BELT 003792
      - SPACER, STRAIN RELIEF PLATE 014551
        - STUD, SPEED CHANGE 013751
          - KEY, STEEL 001100
          - WASHER ISOLATION 013767

DRAWN		5/24/83	Quinton instrument co. 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
CHECKED		6/3/83	
ENGR.			TITLE: CARDIO EXERCISE TREADMILL, Q65
QUAL.			
MFG.			
OTHER			

SIZE	MODEL	DWG. NO.	REV.
D	Q65	000221	—
SCALE		DIST. CODE	SHEET 4 OF 5

DWG NO. 000221 SH. 4 REV. —

QF02-0018979



8
7
6
5
4
3
2
1
REVISIONS
LTR.
ZONE
DESCRIPTION
APPROVED
DATE
FINAL ASSY Q65 TREADMILL (U2
000221-001
FROM SHEET 4
DECK ASSEMBLY 014550
HOOD ASSEMBLY 013015
DRIVE PULLEY ASSEMBLY 013415
TUBE, PULLEY 013409
SHAFT, PULLEY 013401
SPROCKET 012966
BEARING 013419
BEARING 013420
IDLER PULLEY ASSEMBLY 013414
TUBE, PULLEY 013409
SHAFT, PULLEY 013401
BEARING 013419
FRAME ASSY., DECK WELDMENT 014484
TUBING, FRAME SIDE 014552
TUBING, FRAME END 013030
TUBING, FRAME CENTER 014553
TUBING, FRAME CENTER 013029
CYLINDER ASSEMBLY 013373
BODY, CYLINDER 012959
PISTON, ADJUSTING 012961
RAIL, SIDE 013129
EXTRUSION, ALUMINUM 012971
WELDMENT, SIDE SUPPORT 013169
SIDE SUPPORT 013027
BRACKET, SIDE SUPPORT 013131
SLIDER BED 014483
DECK, PLYWOOD 014563
BELT WALKING 012962
FOOT, DECK 012958
ROD, ADJUSTING 012960
END CAP 012964
END CAP, REAR 012963
BELT, TIMING 012957
SCREW ASSY., BELT ADJUST 005192
BRACKET, MICROSWITCH 013739
MICROSWITCH 006872
CABLE ASSY., BELT SWITCH 014508
EXTRUSION, RUBBER 013565
FAN GUARD 009866
HOOD PANEL 012977
PANEL ASSY., RIGHT SIDE 012979
PANEL ASSY., LEFT SIDE 012978
KICK PLATE 013116
LOGO PLATE 013717
MOLDING 002305
FAN FILTER 012888
HANDRAIL 012976
EXTRUSION VINYL 012970
HANDGRIP, FABRIC 013802
BRACKET, GUARD 014702
PULLEY COVER 014768
KEY:
NOT RELEASED
REL PROTOTYPE
REL PREPRODUCTION
REL PRODUCTION
DRAWN 5/24/83
CHECKED 6-3-83
ENGR
QUAL
MFG
OTHER
Quinton instrument co
2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
TITLE CARDIO EXERCISE TREADMILL, Q65
SIZE D
MODEL Q65
DWG. NO. 000221
REV. ~
SCALE
DIST. CODE
SHEET 5 OF 5
DWG NO 000221 SH 5 REV ~
A
B
C
D
QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

E2 E1
E1 GRN
P1
WHT(L2)
BLK(L1)
A4 STRAIN RELIEF PLATE
GRN/YEL
E5
HANDRAIL
E4
E3
HOOD ASSY
SLEEVE
TIP
J2
JACK
L1
L2
COIL
CONTACTOR K1
BLK
RED/WHT
DRIVE MOTOR ASSY M2
RUN
START
T4
T8
T5
T1
P1
P2
WHT(L2)
BLACK(L1)
ORG
GRY
WHT
VIO
VIO
RED
BLK
BLU
ORG
P2 J1
PART OF A4 STRAIN RELIEF PLATE
1 STOP
2 STOP/START
3 GRADE DIRECTION
4 GRADE CHANGE
5 +23V
6 NC
7 NC
8 NC
9 NC
10 GRADE FEEDBACK
11 SIG GND
12 SPEED FEEDBACK
13 ANALOG GND
14 CONT. TEST
15 SPEED DECREASE
16 +23V
17 SPEED INCREASE
18 STOP
19 MTR FAULT
20 BELT TRACKING
21 LO AC FAULT
22 ANALOG GND
23 SIG GND
24 ANALOG GND
25 ANALOG GND
J1
P1
P10
3 5 6 4
PINS 1,2,7,8 (KEY)
P1
P2
3 5 7 4 6
PINS 1,2,8 (KEY)
SPARE
SPARE
P1
P6
5 3 4
PINS 1,2,6,7 (KEY)
P1
P11
BLK
BLK
P1
5 SPARE
6 SPARE
8
7
3
4
PINS 1,2,9 (KEY)
GRY
GRY
P.C.B ASSEMBLY
T.M. CONTROL
A1
12
16
11
15
10
9
14
8
TRANSFORMER ASSY
T1
-001 ONLY
PINS 1,9,10 (KEY)
P3
4 8 7 3 5 6 2
P1
BLK(L1)
ORN
GRY
SPARE
SPARE
YEL
RED(L2)
1
8
5
4
2
3
MOTOR ASSY, GRADE
M1
PINS 1,3,6,7 (KEY)
P4
5 2 4
P1
RED
BLK
BRN
C1
BLK
GRY
M1
YEL
MOTOR ASSY, SPEED CHANGE
A2
NC
COM
S1
ON
RED
BLK
S2
BELT TRACKING
PINS 1,2,5 (KEY)
P9
3 4
P1
RED
BLK
J2
J1
P2
P1
P7
3 1 2
P1
RED
BLU
BLK
U1
PCB ASSEMBLY, OPTICAL INTERRUPTER
A3
PINS 1,2,6 (KEY)
P8
5 3 4
P1
BLK
BRN
RED
CW
CCW
GRADE POT ASSY
R1
PINS 3,4,5 (KEY)
P5
1 2
P1
BLK
BLK
FAN
FAN
F1
UNIT 2
208 VAC, 60 HZ, 1Ø
-003 ONLY
12
16
11
15
10
9
14
8
SPARE
SPARE
GRY
GRY
BLK
BLK
ORG
P1
P2
PINS 1,2,9 (KEY)
TO A1P1
TO A1P6-5
TRANSFORMER ASSY, T1
-001 (220-240 VAC, 60 HZ, 1Ø) STD SHOWN
-002 (220-240 VAC, 50 HZ, 1Ø) SHT. 2
-003 (208 VAC, 60 HZ, 1Ø) NOTED

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES
TOL. .XX ± .XXX ± ANGLE ±
CLASS CODE SCHM
VALUE CODE Q65TMV
QUANTITY PER ASSEMBLY
DO NOT SCALE DRAWING PRINTS

DRAWN	HP SCHMIDT	3 JUN 83
CHECKED	S.K. PAHN	6-20-83
ENGR.	Dave Edwards	7/19/83
QUAL.	Randy Weiler	7-19-83
MFG.		7-19-83
OTHER		

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

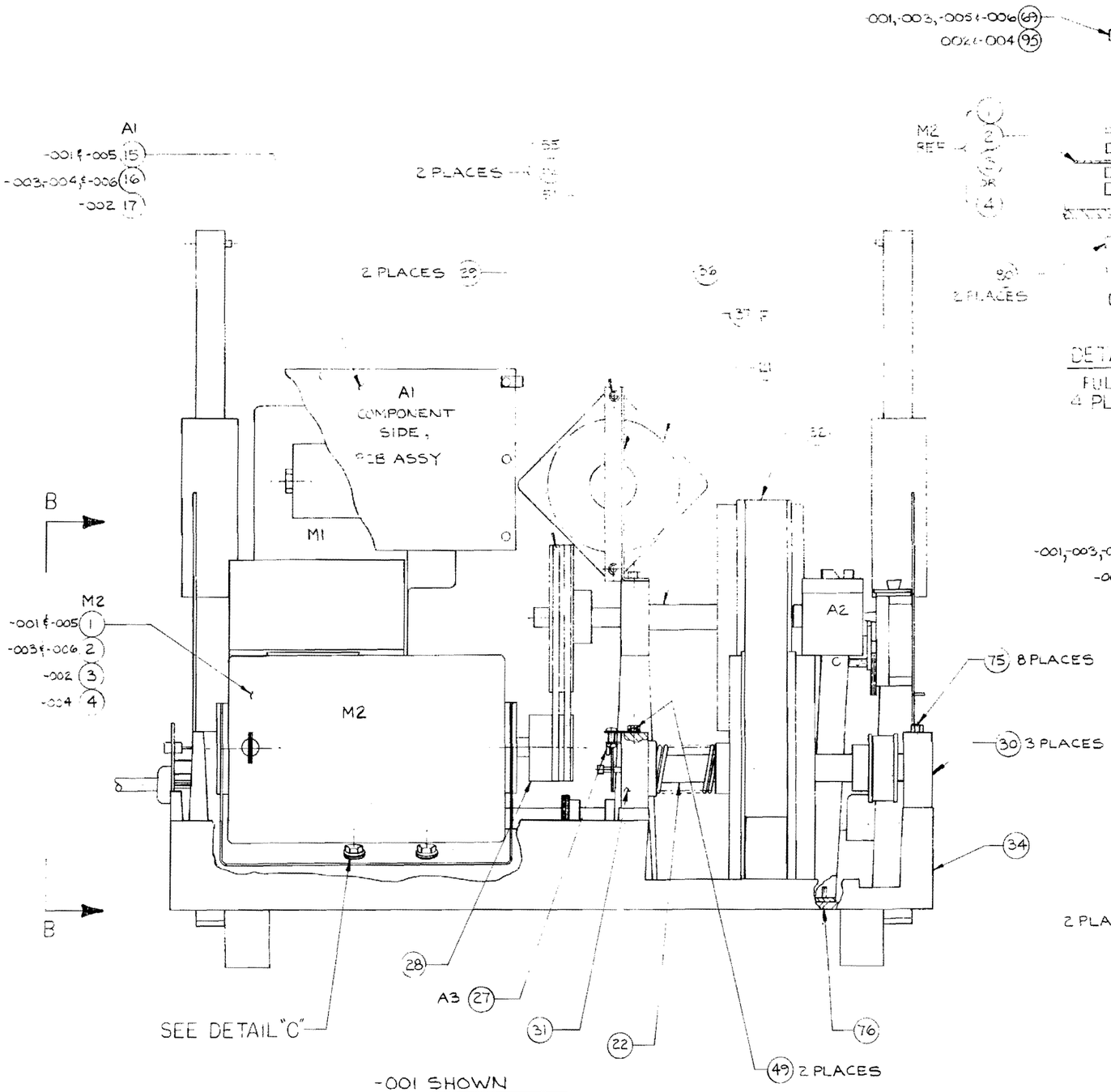
TITLE
CARDIO EXERCISE TREADMILL
Q65
SCHEMATIC

SIZE	MODEL	DWG. NO.	REV.
D	Q65	000221-201	—
SCALE —	DIST. CODE	SHEET 1 OF 2	

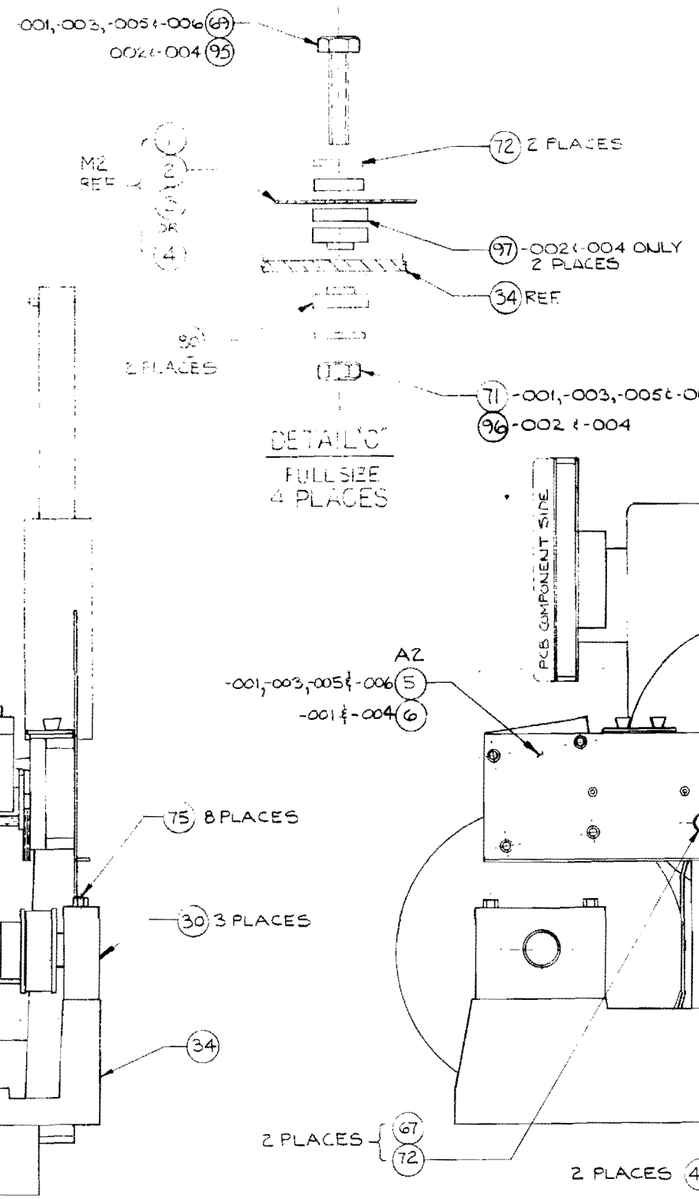
DWG. NO. 000221-201 SH. 1 REV.

QF02-0018976

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



-001 SHOWN
(-002 THRU -006 NOTED)



PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
	PARTS LIST			

UNLESS OTHERWISE SPECIFIED		DRAWN S.K. PLAHN	10682	
ALL DIM. ARE IN INCHES	TOL. .XX ± —	CHECKED	11-17-82	
	.XXX ± —	ENGR. BDQ	11-17-82	
	ANGLE ± —	QUAL.		
QUANTITY PER ASSEMBLY	CLASS CODE —	MFG.		
	VALUE CODE —	OTHER		
DO NOT SCALE DRAWING PRINTS				

Quinton Instruments Co.
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
Q55
HEADFRAME ASSY

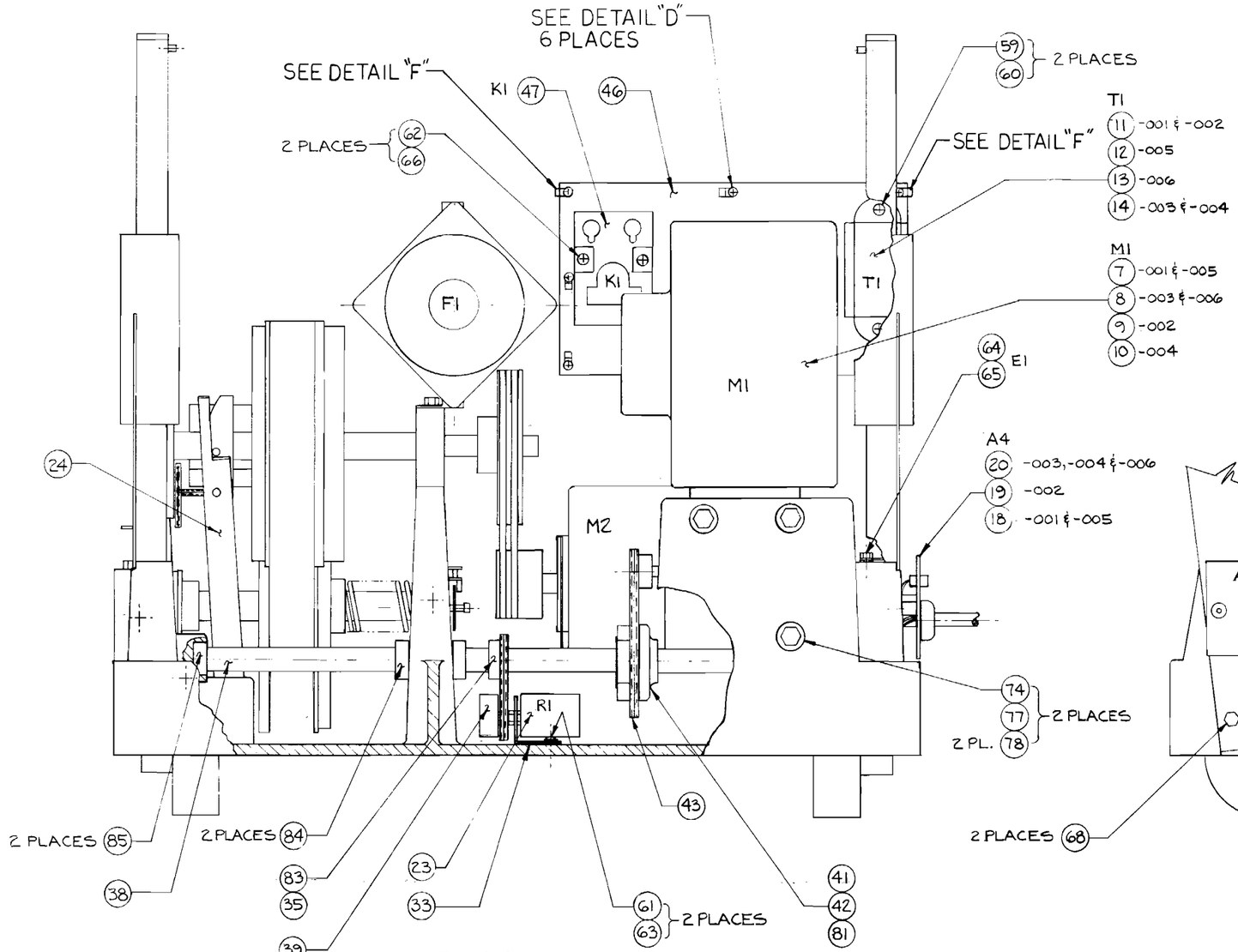
SIZE	MODEL	DWG. NO.	REV.
D	Q55	013032	D

SCALE 1/2 | DIST. CODE | SHEET 3 OF 5

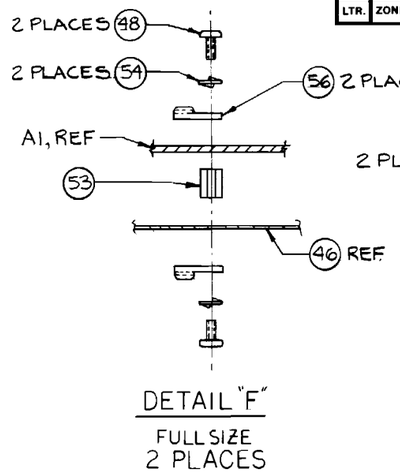
DWG. NO. 013032 SH. 3 REV. D

QF02-0018879

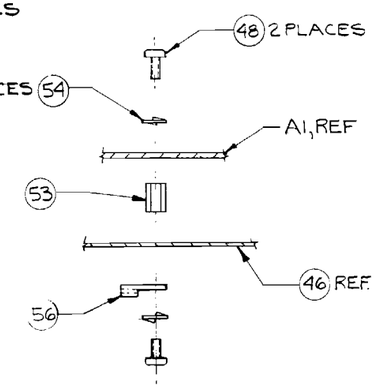
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



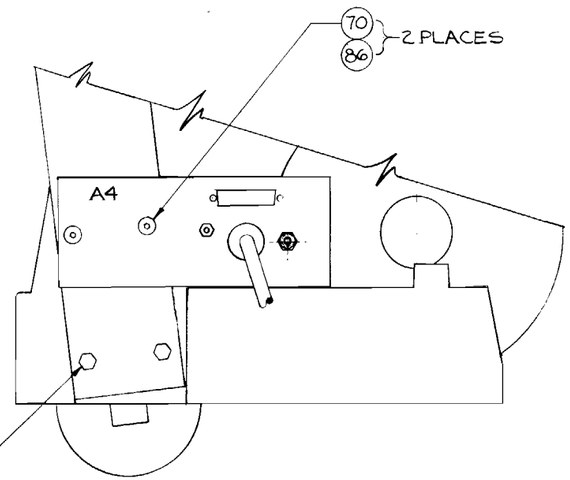
VIEW A-A



DETAIL "F"
FULL SIZE
2 PLACES



DETAIL "D"
FULL SIZE
6 PLACES



VIEW B-B

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± / .XXX ± / ANGLE ±

DRAWN S.K. PLAHN 10-6-82
CHECKED 11-17-82
ENGR. BDD 11-17-82
QUAL.
MFG.
OTHER

QUANTITY PER ASSEMBLY
CLASS CODE
VALUE CODE

DO NOT SCALE DRAWING PRINTS

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
Q55
HEADFRAME ASSY

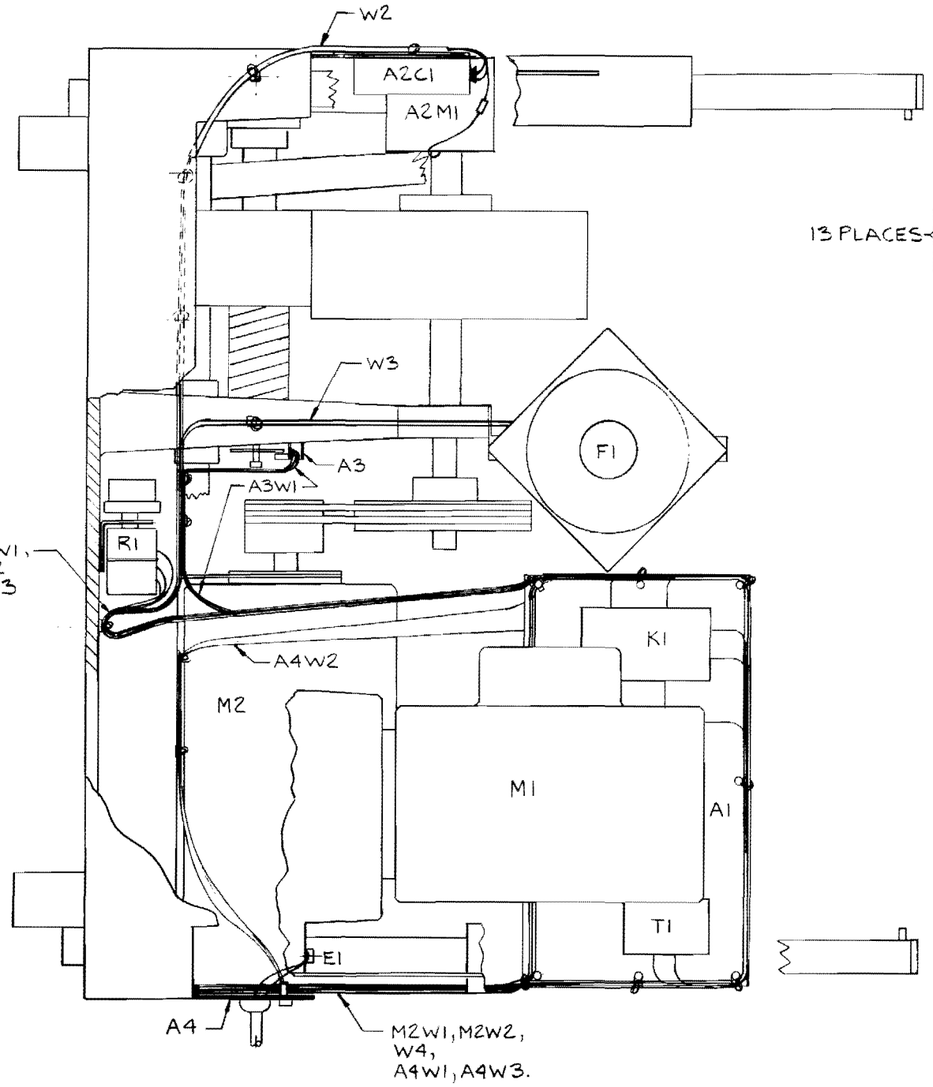
SIZE	MODEL	DWG. NO.	REV.
D	Q55	013032	D

SCALE 1/2 — DIST. CODE — SHEET 4 OF 5

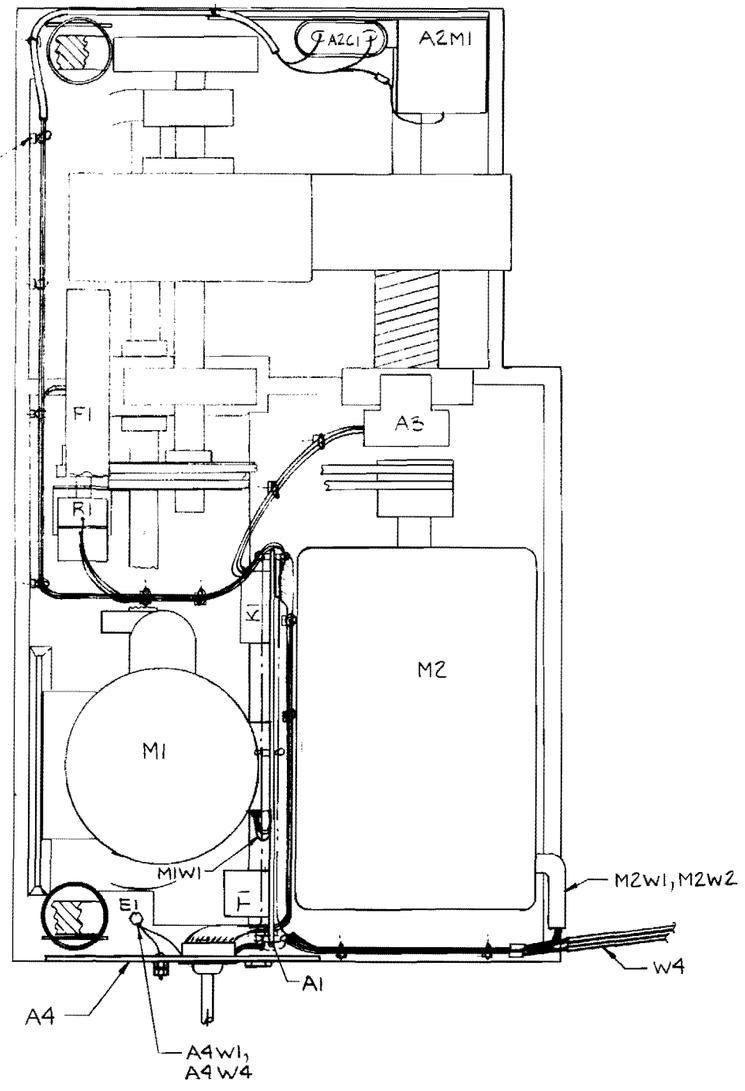
DWG. NO. 013032 SH. 4 REV. D

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



13 PLACES (58) (57) (56)



WIRE ROUTING DIAGRAM
(MECHANICAL DETAILS SIMPLIFIED)

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± — .XXX ± — ANGLE ±

QUANTITY PER ASSEMBLY — CLASS CODE — VALUE CODE

DO NOT SCALE DRAWING PRINTS

DRAWN	S.K. PLAHN 3-24-83
CHECKED	
ENGR.	
QUAL.	
MFG.	
OTHER	

Quinton
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SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
Q55
HEADFRAME ASSY

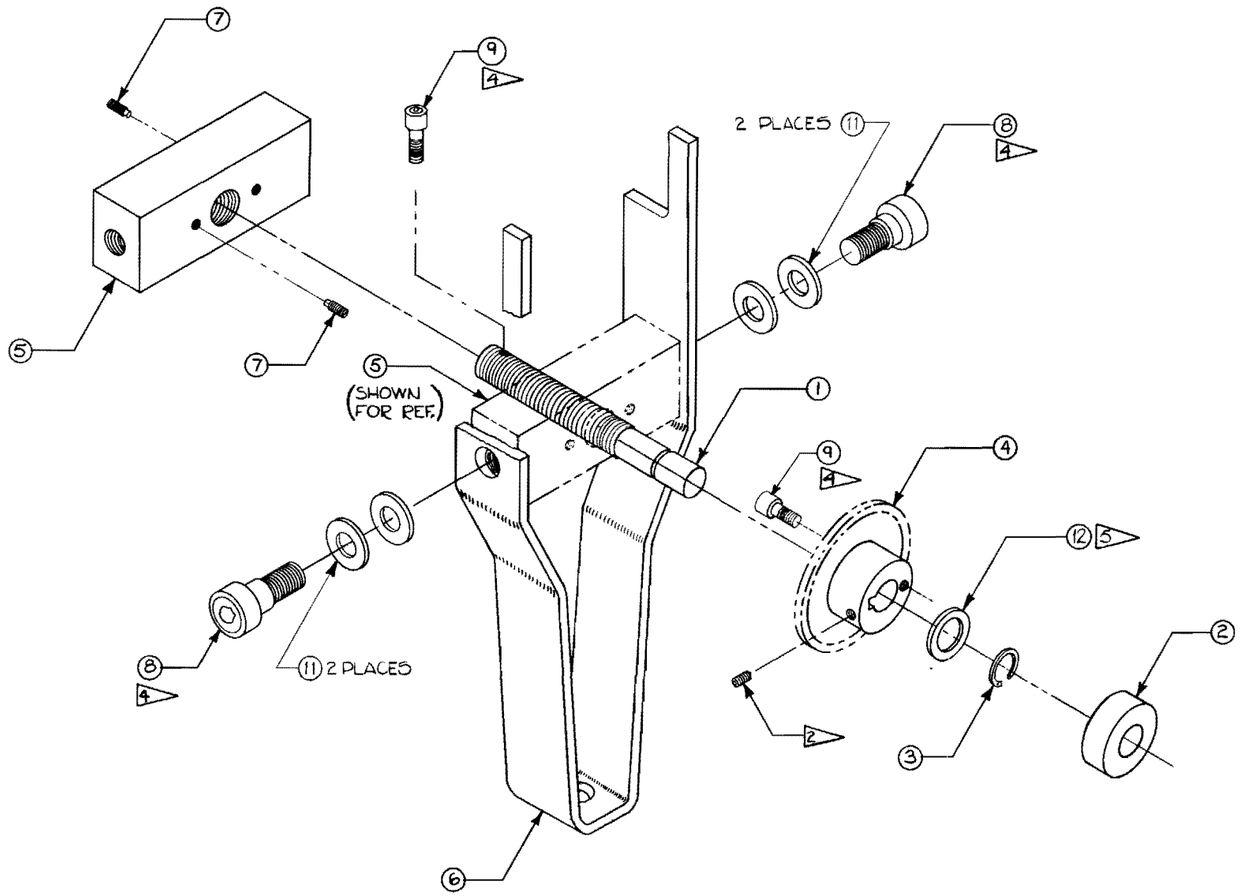
SIZE	MODEL	DWG. NO.	REV.
D	Q55	013032	D

SCALE	DIST. CODE	SHEET
NONE		5 OF 5

DWG. NO. 013032 SH. 5 REV. D

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		ADDED ITEM 9. ITEM 7 P/N WAS 013084-001. EFF VIII DISP: REWORK		5-8-82
B		1) ADDED ITEM 10 (RETAINING COMPOUND) 2) ADDED FLAGNOTE 4. EFF PT: VII DISP: REWORK RELEASE TO PREPRODUCTION		4/10/82 4-12-82 4-12-82 4-12-82
C		1) ADDED ITEM 11, WASHER EFF PT: VII DISP: USE		2-10-83 2-25 2-28
D		1) ITEM 3 PART NO. WAS 012558-001. EFF PT: VI DISP: REWORK		5/17/82 6-7-82 6-29-82 7-1-82
E		1) ADDED ITEM 12. 2) ADDED FLAGNOTE 5. EFF PT: V DISP: REWORK		7/7/82 7-8-82 7-8-82



NOTES:

1. BAG OR TAG PART AND MARK WITH PART NO. AND REV. LETTER TO WHICH MFD.
2. SET SCREW IS SUPPLIED WITH ITEM (4), (SPROCKET) AND IS SHOWN REMOVED FOR CLARITY.
3. SET SCREWS (ITEM (4)) ARE TO BE ADJUSTED TO WITHIN ±.01 OF DIMENSIONS SHOWN. THEY WILL BE CRITICALLY ADJUSTED AND BONDED IN PLACE AT THE FINAL ASSY. OF THE TREADMILL.
4. BOND ITEM (8) AND ITEM (9) IN PLACE USING ITEM (10) (RETAINING COMPOUND).
5. INSTALL ITEM (12) AS REQUIRED BETWEEN ITEM (3) AND ITEM (4) TO INSURE FULL CONTACT OF SET SCREW OF ITEM (4) WITH SHAFT FLAT.

PREPRODUCTION

.01	12	013399-015	ARBOR SHIM	.501 I.D. x .750 O.D. x .020 THK.
4	11	007125-001	WASHER, FLAT	NYLON .375 I.D. x .750 O.D. x .062
.01	10	012465-001	RETAINING COMPOUND	LOCTITE #601
2	9	010821-204	SCREW, CAP, HEX SOCKET	10-32 X .50 LG.
2	8	013035-001	SCREW, SHOULDER	3/8 SHLDR., SOCKET HEAD
2	7	010833-205	SCREW, SET	1/4-20, FULL DOG
1	6	012994-001	FORK, SPEED CHANGE	
1	5	013045-001	YOKE, SPEED CHANGE	
1	4	013059-002	SPROCKET, MODIFIED	
1	3	001032-002	RING, RETAINING	
1	2	001535-001	BEARING, SHAFT	
1	1	012983-001	SPINDLE, SPEED CHANGE	
	—	-001	SPINDLE ASSY., SPEED CHANGE	

PARTS LIST

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
-001				

-001	014493	000221
-001	013032	000208
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± .XXX ± ANGLE ±

DRAWN 2/9/82 — CHECKED 2-17-82 — ENGR. 3DD 2-17-82 — QUAL. Randy Wallis 4-12-82 — MFG. 4-12-82 — OTHER

QUANTITY PER ASSEMBLY — CLASS CODE SPIA — VALUE CODE 000208

DO NOT SCALE DRAWING PRINTS

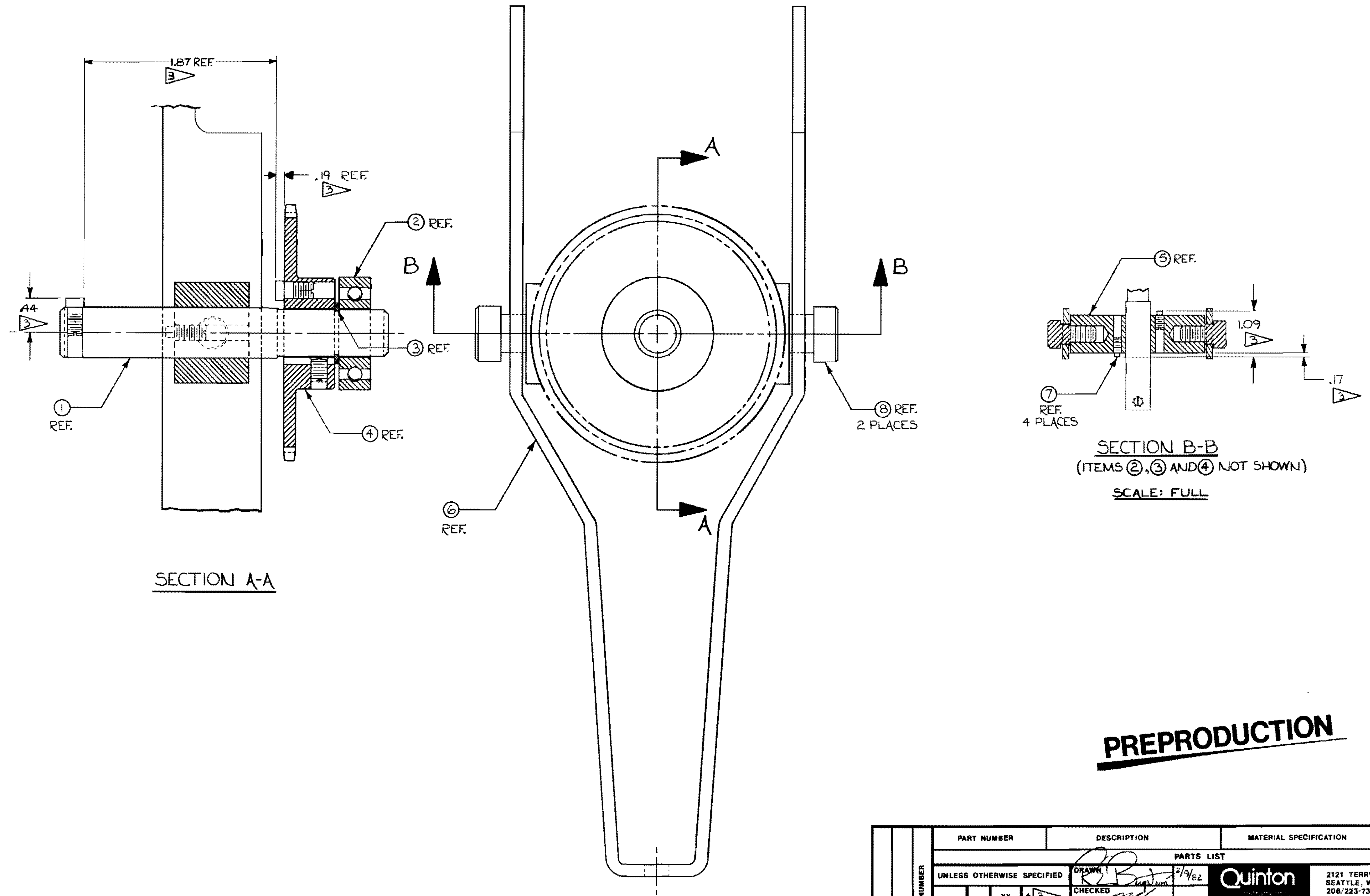
Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: SPINDLE ASSEMBLY, SPEED CHANGE

SIZE	MODEL	DWG. NO.	REV.
D	955 965	013066	E
SCALE FULL	DIST. CODE	SHEET 1 OF 2	

DWG. NO. 013066 SH. 1 REV. E

QF02-0018979



PREPRODUCTION

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

PARTS LIST

PART NO.	NEXT ASSY. NO.	END ITEM NO.

APPLICATION

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES — TOL. .XX ± 3; .XXX ±; ANGLE ±

CLASS CODE SPIA
VALUE CODE 000208
QUANTITY PER ASSEMBLY
DO NOT SCALE DRAWING PRINTS

DRAWN 2/9/82
CHECKED
ENGR. BDD
QUAL.
MFG.
OTHER

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE SPINDLE ASSEMBLY, SPEED CHANGE

SIZE D | MODEL Q55 Q65 | DWG. NO. 013066 | REV. E

SCALE 2/1 & NOTED | DIST. CODE | SHEET 2 OF 2

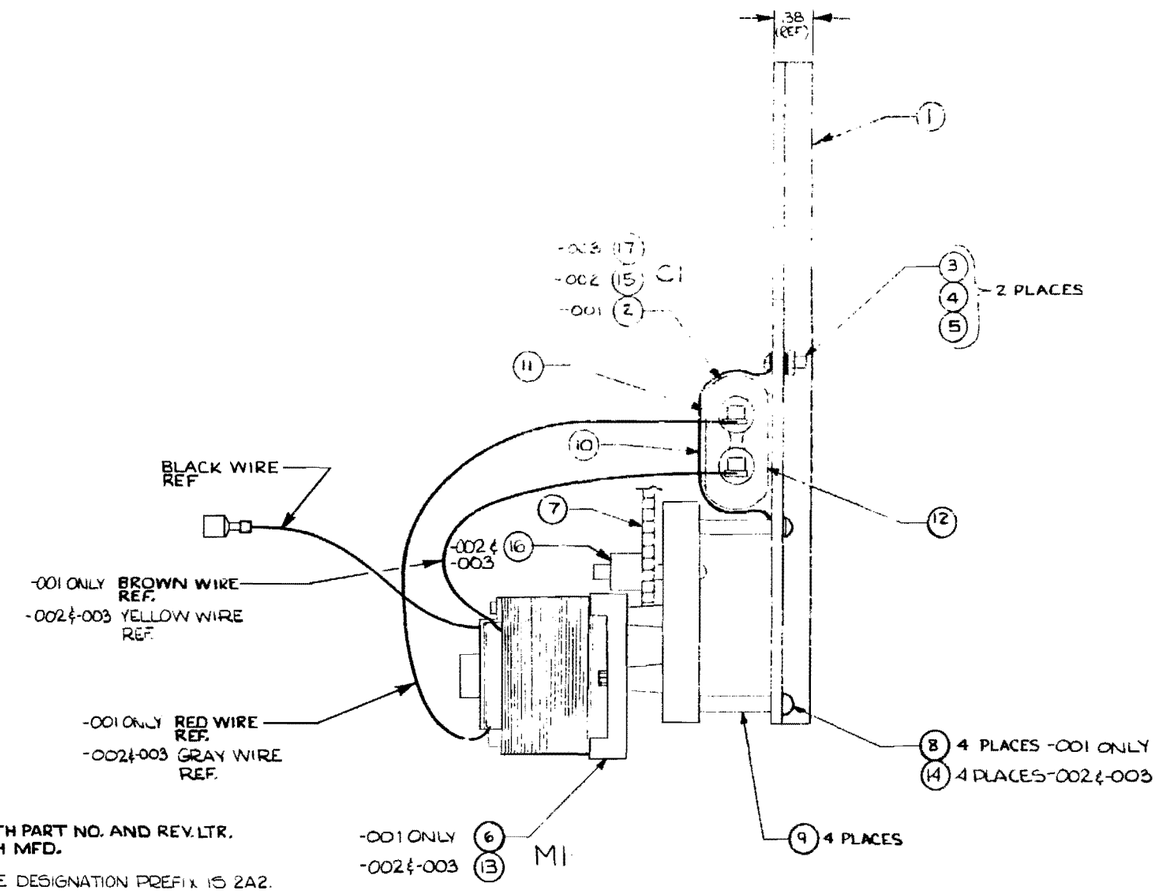
REVISIONS

LTR.	ZONE	DESCRIPTION	APPROVED	DATE

DWG. NO. 013066 SH. 2 REV. E

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		RELEASE TO PREPRODUCTION		4/19/82
B		1) ITEM 6 WAS 009703-001, MOTOR 2) REVISED PICTURE TO SHOW WIRING TO CAPACITOR AND NEW FLANGE ON ITEM 1. 3) ITEM 8 WAS 006786-001. 4) ITEM 9 WAS 01827-001 EFF PT: V DISP: REWORK		5/27/82
C		1) ADDED -002 & -003 CONFIGS. 2) ADDED ITEMS 13, 14, 15, 16 & 17 TO P/L EFF PT: IX DISP: NEW CONFIG.		7-13-82 6-24-82
D		1) BRACKET WAS SHOWN UPSIDE DOWN 2) ADDED REF DES INFO. 3) TITLE WAS "ASSY, SPEED CHANGE MOTOR 2A" ADDED G65 TO APPLICATIONS EFF PT: VIII DISP: NONE		2-10-83 3-2-83 3-2-83
E		ITEM 12 WAS -001 ONLY ON PICTORIAL. ADDED ITEM 17 & MOVED ITEM 5 ON PICTORIAL, AS CALLOUTS. ADDED C1 & M1 REF. DES. TO PICTORIAL & P.L. ITEM 17 WAS 009707-002, 10 uF CAP. EFF. PT: VIII, DISP: RCRD. CHANGE		SEP 9-26-83 3/9/83 3-4-83 5-9-83
F		ITEM 7 PART NO. WAS 003274 -001. EFF PT: VII DISP: USE		7/5/83 7/15/83



-001 SHOWN

-002 & -003 SIMILAR EXCEPT AS NOTED

NOTES:

1. MARK WITH PART NO. AND REV. LTR. TO WHICH MFD.
2. REFERENCE DESIGNATION PREFIX IS 2A2.

1	—	—	17	005808-001	CAPACITOR, A.C.	6 uf C1
\	—	—	—	-003	MOTOR ASSY., SPEED CHANGE	
1	1	—	16	010230-001	SPROCKET, CHAIN	16 TOOTH
—	1	—	15	001041-001	CAPACITOR, A.C.	4 uf C1
4	4	—	14	010828-123	SCREW, PAN HEAD	8-32 x 1.50 LONG PHILLIPS REC
1	1	—	13	013683-002	MOTOR ASSY.	M1
—	\	—	—	-002	MOTOR ASSY., SPEED CHANGE	
1	1	1	12	008349-003	INSULATOR	
1	1	1	11	008349-002	INSULATOR	
1	1	1	10	002342-001	STRAP, CAPACITOR	
4	4	4	9	013754-001	STANDOFF	.375 O.D x .083 WALL x .75 LG
—	—	4	8	010353-001	SCREW, P.H.	#10-32 x 1.50 LONG.
.01	.01	.01	7	001745-001	CHAIN	33 LINKS + MASTER
—	—	1	6	013683-001	SUB-ASSY., SPEED CHANGE MOTOR	M1
2	2	2	5	012029-006	STAR WASHER	#8
2	2	2	4	001575-001	NUT	#8
2	2	2	3	010827-203	SCREW, P.H.	#8 x .50 LONG
—	—	1	2	009707-001	CAPACITOR, AC	7.5 uf. C1
1	1	1	1	012988-001	BRACKET, SPEED CHANGE	
—	—	\	—	-001	MOTOR ASSY, SPEED CHANGE	

-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

PARTS LIST

PART NO.	NEXT ASSY. NO.	END ITEM NO.
-003	014493 013032	000221 000208
-002	014493 013032	000221 000208
-001	013032	000208

APPLICATION

PREPRODUCTION

UNLESS OTHERWISE SPECIFIED — ALL DIM ARE IN INCHES — TOL. .XX ± .XXX ± ANGLE ±

DRAWN 2-8-82 — CHECKED 5-6-82 — ENGR. BDD 2-10-83 — QUAL. Ready for sale 4-12-83 — MFG. 4-9-83 — OTHER

CLASS CODE SPED — VALUE CODE MOTORV — QUANTITY PER ASSEMBLY

DO NOT SCALE DRAWING PRINTS

Quinton Instrument Co. 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373

TITLE: MOTOR ASSY., SPEED CHANGE (2A2)

SIZE D — MODEL G55 G65 — DWG. NO. 013067 — REV. F

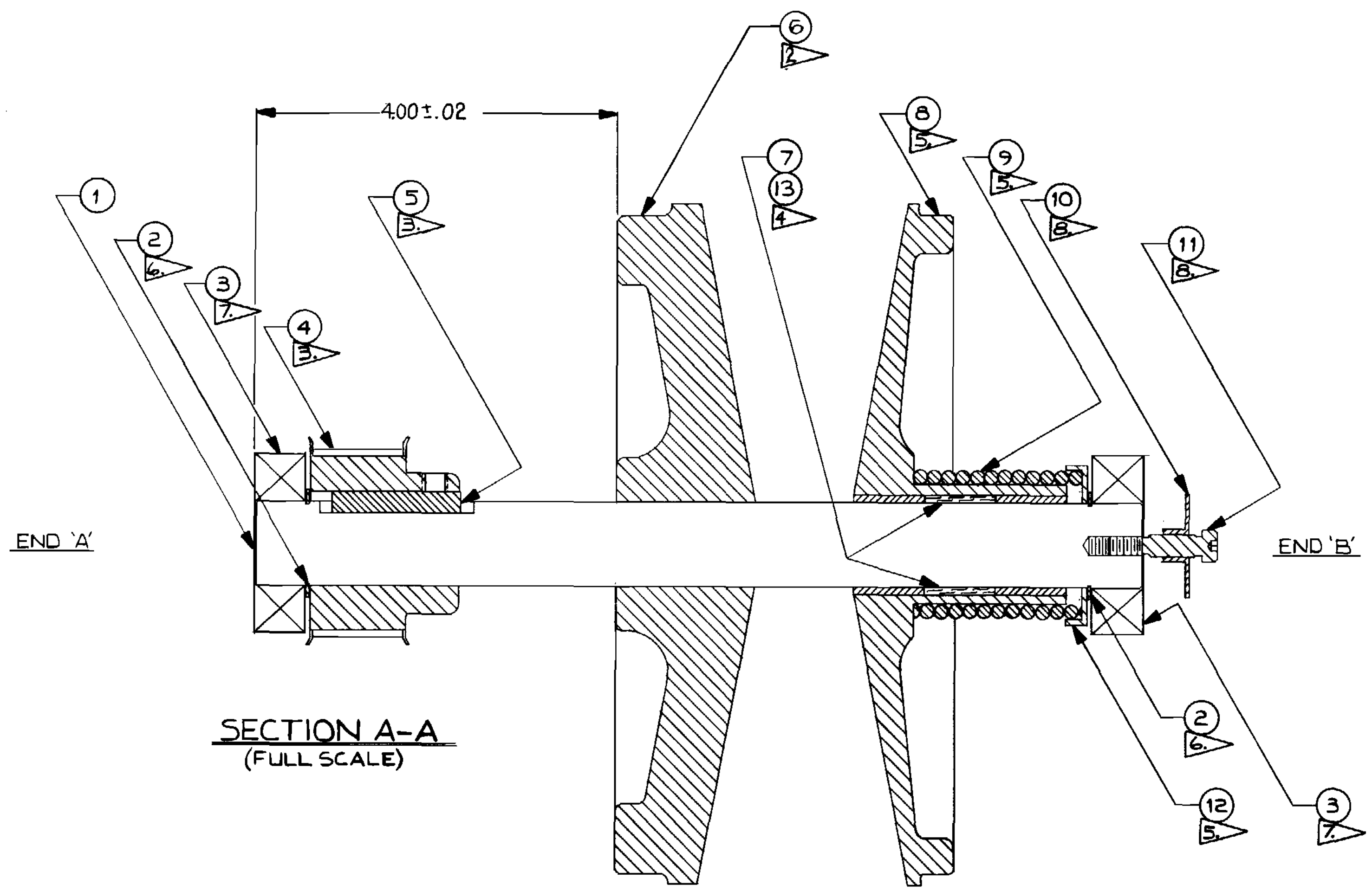
SCALE FULL — DIST. CODE — SHEET 1 OF 1

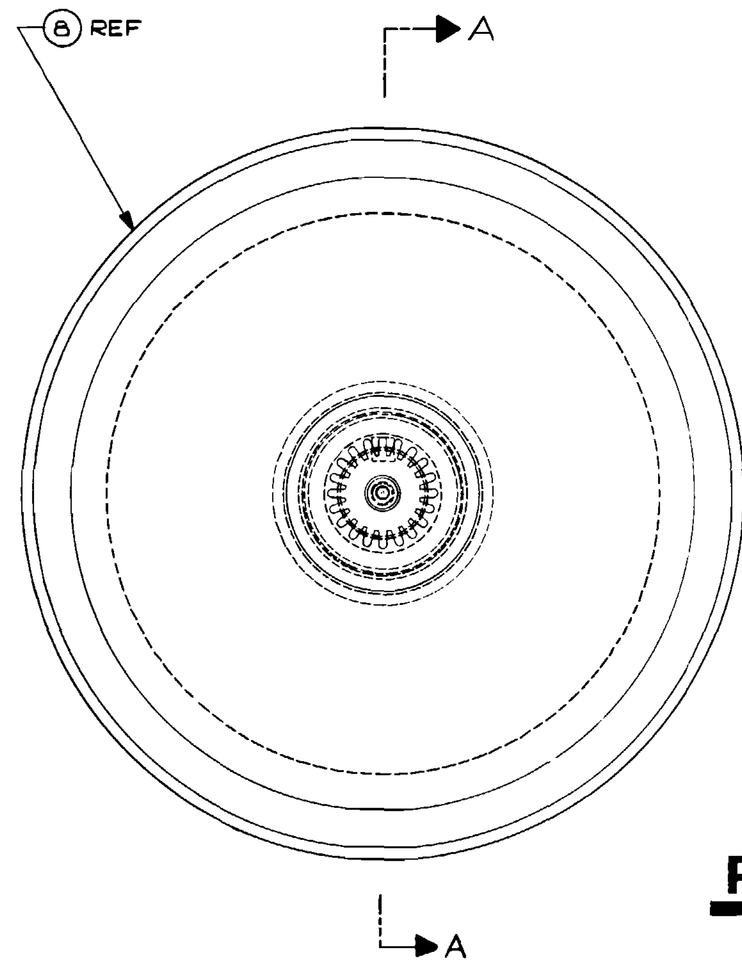
DWG NO 013067 SH 1 REV F

QF02-0018979

REVISIONS

LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		1) ITEM 4 IS 013721-001, WAS 012992-001 EFF PT; VIII DISP.: RECORD CHANGE 2) ADDED 4.00 ±.02 DIM. (3) REMOVED 1 4) REMOVED ITEM 2, QTY IS 1 WAS 2 EFF. PT; V DISP.; REWORK		5-26-82 6-7-82 6-7-84
B		ADDED Q65 INFO. TO APPLICATION BLOCK. EFF. PT: VIII, DISP: RCRD.CHN		5-4-83 5-5-83





PREPRODUCTION

NOTES:

2. ASSEMBLE ITEM 6 TO ITEM 1 OVER END 'B', UP TO ITEM 2.
3. PLACE ITEM 5 IN KEY GROOVE OF ITEM 1. SLIDE ITEM 4 OVER END 'A' OF ITEM 1, FITTING KEY GROOVE OF ITEM 4 OVER ITEM 5.
4. CUT ITEM 7 TO SIZE AND THOROUGHLY SOAK IN ITEM 13 (CYLINDER OIL) BEFORE INSERTING INTO ITEM 8.
5. SLIDE ITEM 8, ITEM 9, AND ITEM 12 OVER END 'B' OF ITEM 1.
6. SNAP ITEM 2 INTO POSITION (2 PLACES).
7. SLIDE ITEM 3 OVER EACH END OF ITEM 1 TO STOP AT ITEM 2.
8. SLIDE ITEM 10 ONTO ITEM 11 PRIOR TO THREADING ITEM 11 INTO END 'B' OF ITEM 1.
9. BAG OR TAG WITH PART NO. AND REV. LTR. TO WHICH MFD.

QTY	ITEM	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
.01	13	013411-001	OIL, CYLINDER	600 WEIGHT	
1	12	012556-001	RETAINER, SPRING		
1	11	010197-002	SCREW, SHLDR, HEX SOC	1/4 × 10-24 UNC-3A	
1	10	006875-001	CHOPPER, BEAM		
1	9	013049-001	SPRING, CYL., L.H. HELIX		
1	8	013036-002	SHEAVE ASSY.		
2.25 SI.	7	011807-007	FELT	WHITE	
1	6	013063-001	SHEAVE, FIXED		
1	5	001803-002	KEY, SQUARE	.250 SQ × 1.50 LG.	
1	4	013721-001	PULLEY, TIMING, MOD.	20MM WIDE, 8MM PITCH	
2	3	006855-001	BEARING	52MM O.D., 25MM I.D., 15MM LG.	
1	2	012558-002	RETAINING RING, EXT.	.98 DIA	
1	1	013048-001	SHAFT, DRIVEN		
		-001	OUTPUT SHAFT ASSY		

PARTS LIST

QUANTITY PER ASSEMBLY: -001 | ITEM NUMBER

UNLESS OTHERWISE SPECIFIED: ALL DIM. ARE IN INCHES. TOL. .XX ± — .XXX ± — ANGLE ± —

CLASS CODE: SHAA
VALUE CODE: 000208

DRAWN: P. SLAGHT — FEB 82
CHECKED: — 4-2-82
ENGR.: BOO — 3-6-82
QUAL: Dan Roper — 4/7/82
MFG.: — 4-7-82
OTHER

Quinton — 2121 TERRY AVENUE, SEATTLE, WASHINGTON 98121, 206/223-7373

TITLE: OUTPUT SHAFT ASSY.

SIZE: D | MODEL: Q55, Q65 | DWG. NO.: 013068 | REV.: B
SCALE: FULL | DIST. CODE | SHEET 1 OF 1

DO NOT SCALE DRAWING PRINTS

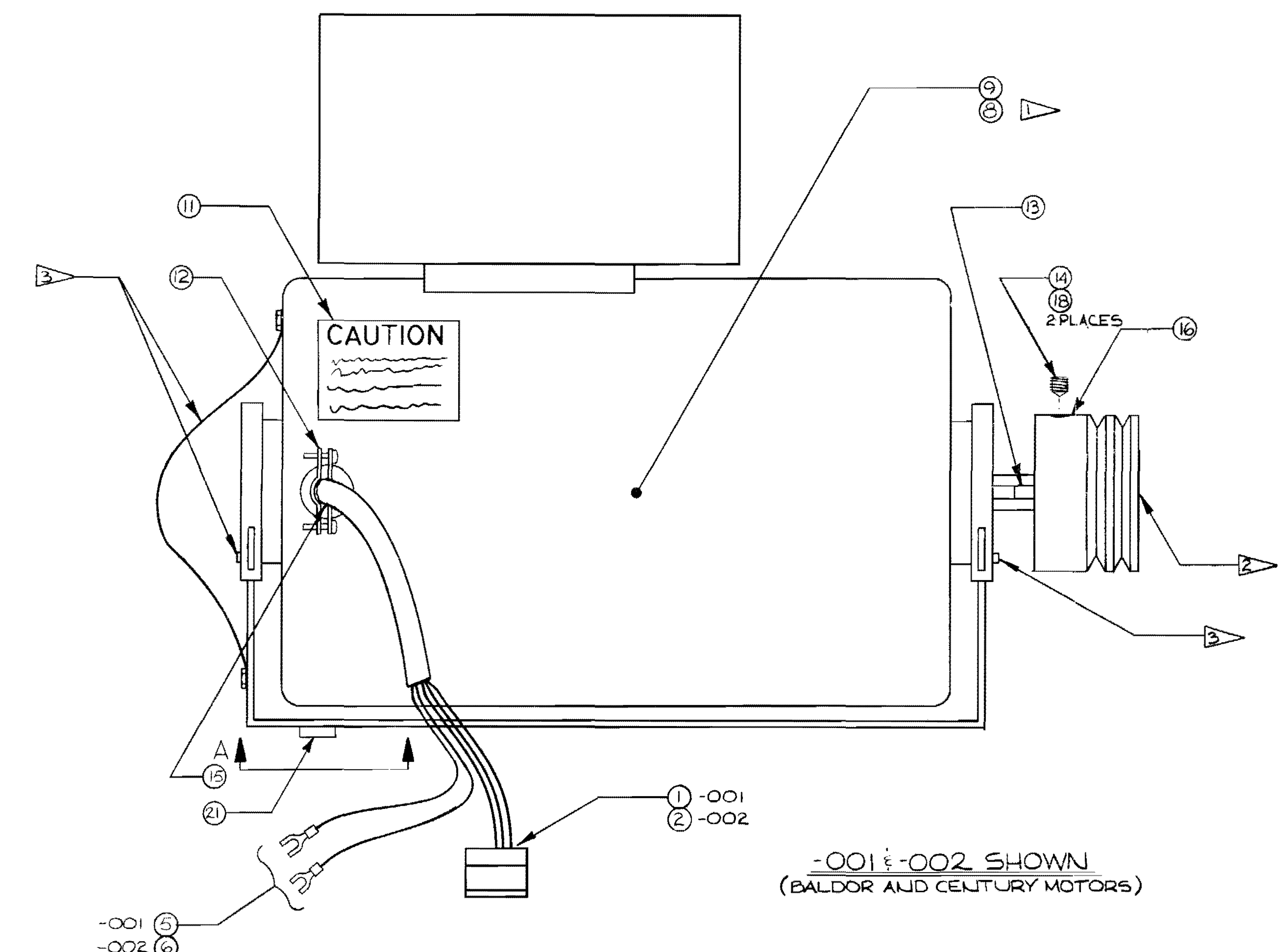
PART NO.	NEXT ASSY. NO.	END ITEM NO.
-001	014493	000221
-001	013032	000208

APPLICATION

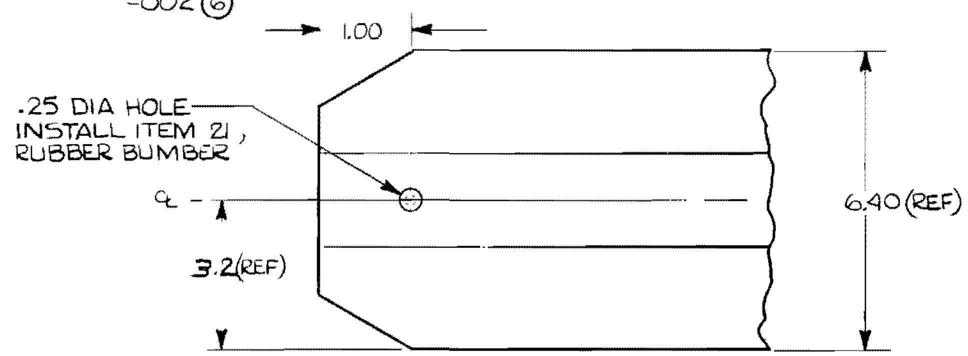
DWG. NO. 013068 | SH. 1 | REV. B

QF02-0018079

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		1)ADDED NEW SHT2 TO SHOW -003 & -004 AND RENUMBERED EXISTING SHEETS 2) ADDED FLAGNOTES 7 & 8. (3)ADDED ITEMS 21,22,&23.(4)ADDED VIEW A-A SHT 1.(5)ADDED .25 DIA HOLE SHT 1. EFF. PT: VII DISP: NONE	B. Buck	8-16-82
B		1) ADDED NOTES ▷ TO ▷ & 15, AND ITEMS 24 THRU 27 ON NEW SHT. 2. 2) RENUMBERED EXISTING SHEETS. 3)ADDED REF. DES. PREFIX EFF PT: VIII DISP: NONE	R.K.S.	12-11-82



-001 & -002 SHOWN
(BALDOR AND CENTURY MOTORS)



SCALE 2:1

VIEW A-A

PREPRODUCTION

NOTES:

1▷ ITEM (8) (013014-001) IS ALTERNATE FOR ITEM (9)(013014-002). ITEM (9) IS PREFERRED.

2▷ MOUNT PULLEY FLUSH WITH END OF MOTOR SHAFT.

3▷ REMOVE GROUND WIRE AND/OR GROUND CLIPS.

4▷ SEE SHEETS 3 THRU 5 FOR WIRING DIAGRAM AND ELECTRICAL SCHEMATIC FOR CORRECT VOLTAGE AND FREQUENCY.

5 WIRE DESIGNATIONS IN PARENTHESES ARE INTERNAL MOTOR WIRES

6 TAG PART WITH PART NO. AND REV. LETTER TO WHICH MFD.

7▷ REMOVE CAPACITOR COVERS. USING ITEM 22 CLAMP, ITEM 23 LOCKWASHER AND SCREWS (USED FOR THE COVER), SECURE CAPACITORS AS SHOWN, SHT 3.

NOTES AND PARTS LIST CONTINUED ON SHT. 2

-004	-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
2	2	—	—	23	012029-006	WASHER, LOCK	INTERNAL STAR	
2	2	—	—	22	004283-004	CLAMP		
—	—	1	1	21	013806-001	BUMBER, RUBBER		
3	4	—	—	20	001486-001	CLOSED END SPLICE	18-10 GAGE	
—	—	1	2	19	C08324-001	TERMINAL, SOLDERLESS	FLAG, .25 Q.D. 18-12 GAGE	
.01	.01	.01	.01	18	007403-001	ADHESIVE	LOCTITE #242	
1	1	—	—	17	013168-001	PULLEY	50 Hz	
—	—	1	1	16	012993-001	PULLEY	60 Hz	
7.0"	7.0"	7.0"	7.0"	15	010390-006	SLEEVING	3/8 I.D., 1/2 O.D., P.V.C.	
2	2	2	2	14	010833-145	SCREW, SET	1/4-20 × .25 LG.	
1	1	1	1	13	001100-004	KEY, SQUARE, STEEL	3/16 SQ. × 1.50 LG.	
1	1	1	1	12	004978-001	CLAMP, CABLE	1/2 INCH	
1	1	1	1	11	010011-013	LABEL, CAUTION		
▷	▷	—	—	10	013403-001	MOTOR	50 Hz, LEESON	
—	—	1	1	9	013014-002	MOTOR	60 Hz, CENTURY	
—	—	1▷	1▷	8	013014-001	MOTOR	60 Hz, BALDOR	
1	1	—	—	7	013393-003	WIRE SET DRIVE MOTOR	POWER WIRES	W2
—	—	1	—	6	013393-002	WIRE SET, DRIVE MOTOR	POWER WIRES	W2
—	—	—	1	5	013393-001	WIRE SET, DRIVE MOTOR	POWER WIRES	W2
1	—	—	—	4	013386-004	HARNESS ASSY., DRIVE MOTOR	OVERLOAD WIRES	W1
—	1	—	—	3	-003	↕	↕	W1
—	—	1	—	2	-002	↕	↕	W1
—	—	—	1	1	013386-001	HARNESS ASSY., DRIVE MOTOR	OVERLOAD WIRES	W1
\	—	—	—	—	-004	MOTOR ASSY., DRIVE	100-120V, 50 Hz 4▷	
—	\	—	—	—	-003	↕	200-240V, 50 Hz 4▷	
—	—	\	—	—	-002	↕	100-120V, 60 Hz 4▷	
—	—	—	\	—	-001	MOTOR ASSY., DRIVE	208-240V, 60 Hz 4▷	

PARTS LIST

QUANTITY PER ASSEMBLY

UNLESS OTHERWISE SPECIFIED ALL DIM. ARE IN INCHES TOL. .XX ± .XXX ± ANGLE ±

CLASS CODE MOTA

VALUE CODE Q55 ///

DRAWN 5/21/82 CHECKED 5-24-82 ENGR. Richard Linnemann 5-25-82 QUAL. Randy Walls 5-25-82 MFG. 5-25-82 OTHER

Quinton Instrument Co. 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373

TITLE MOTOR ASSEMBLY, DRIVE (2M2)

SIZE D MODEL Q55 DWG. NO. 013657 REV B

SCALE 1/1 DIST. CODE SHEET 1 OF 6

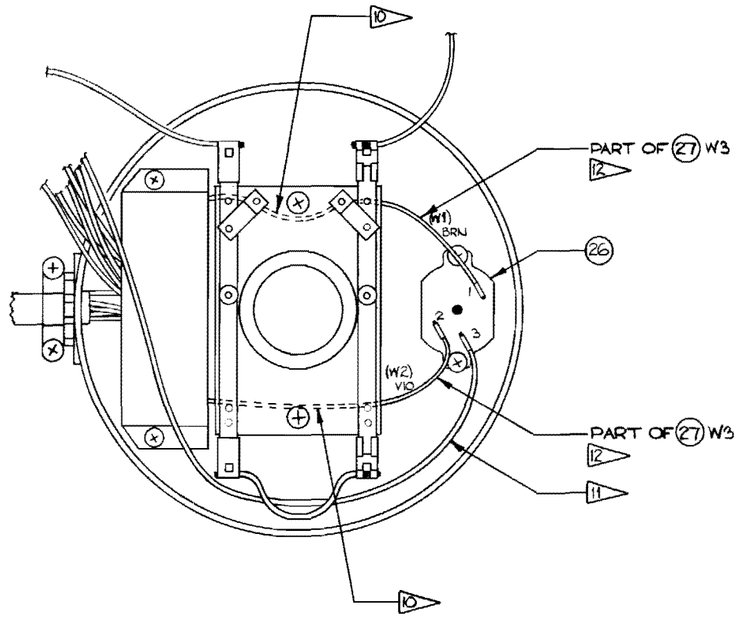
DO NOT SCALE DRAWING PRINTS

-001 THRU -004	013032	000208
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

DWG. NO. 013657 SH. 1 REV. B

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



INSIDE END CAP OF
ITEM 10 (013403-001).

NOTES: (CONTINUED FROM SHT. 1)

8. SPLICE & ADD WIRE AS NEEDED.
9. ITEM (25) (013403-003) PREFERRED, ITEM (24) (013403-002) FIRST ALTERNATE, ITEM (10) (013403-001) SECOND ALTERNATE.
10. ROUTE WIRE BEHIND SCREW HOLDING START SWITCH PLATE.
11. SOLDER WIRE (T1) TO THERMAL PROTECTOR (P3) AS SHOWN AND ROUTE WIRE BEHIND START SWITCH CROSSOVER WIRE AS SHOWN.
12. SOLDER TO TERMINAL SHOWN.
13. QTY. 1 EACH WHEN USING ITEM 10, SECOND ALTERNATE MOTOR (013403-001).
14. ITEM 10 (013403-001) MOTOR SHOWN, ITEM 24 (013403-002) MOTOR SIMILAR EXCEPT FOR MOUNT AND CAPACITOR MODIFICATION IS DONE AT FACTORY, ITEM 25 (013403-003) MOTOR SIMILAR EXCEPT THE CAPACITOR MODIFICATION IS DONE AT THE FACTORY.
15. REFERENCE DESIGNATION PREFIX: 2M2

PREPRODUCTION

		—	—	27	014619-001	WIRE SET		W3
		—	—	26	014618-001	SWITCH, THERMAL	KLIXON #CEJ33CV	
		—	—	25	013403-003	MOTOR	50 Hz, LEESON	
		—	—	24	013403-002	MOTOR	50 Hz, LEESON	
					PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

PARTS LIST

004 003 002 001 ITEM NUMBER

UNLESS OTHERWISE SPECIFIED / ALL DIM. ARE IN INCHES / TOL. .XX ± / .XXX ± / ANGLE ±

DRAWN KCB 12/10/82 | CHECKED | ENGR. | QUAL. | MFG. | OTHER

CLASS CODE MOTA

VALUE CODE 055111

QUANTITY PER ASSEMBLY

DO NOT SCALE DRAWING PRINTS

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: MOTOR ASSEMBLY, DRIVE (2M2)

SIZE D | MODEL Q 55 | DWG. NO. 013657 | REV. B

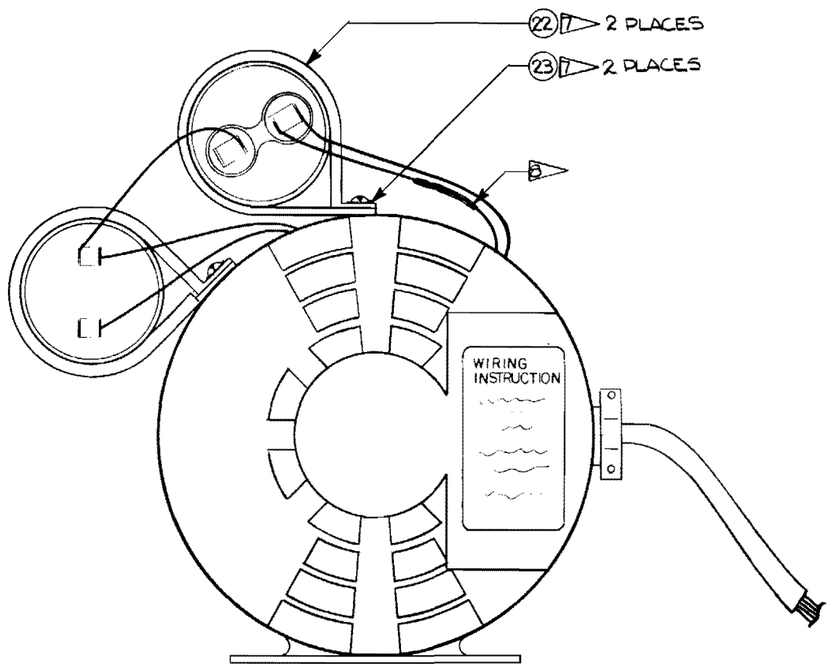
SCALE 1/1 | DIST. CODE | SHEET 2 OF 6

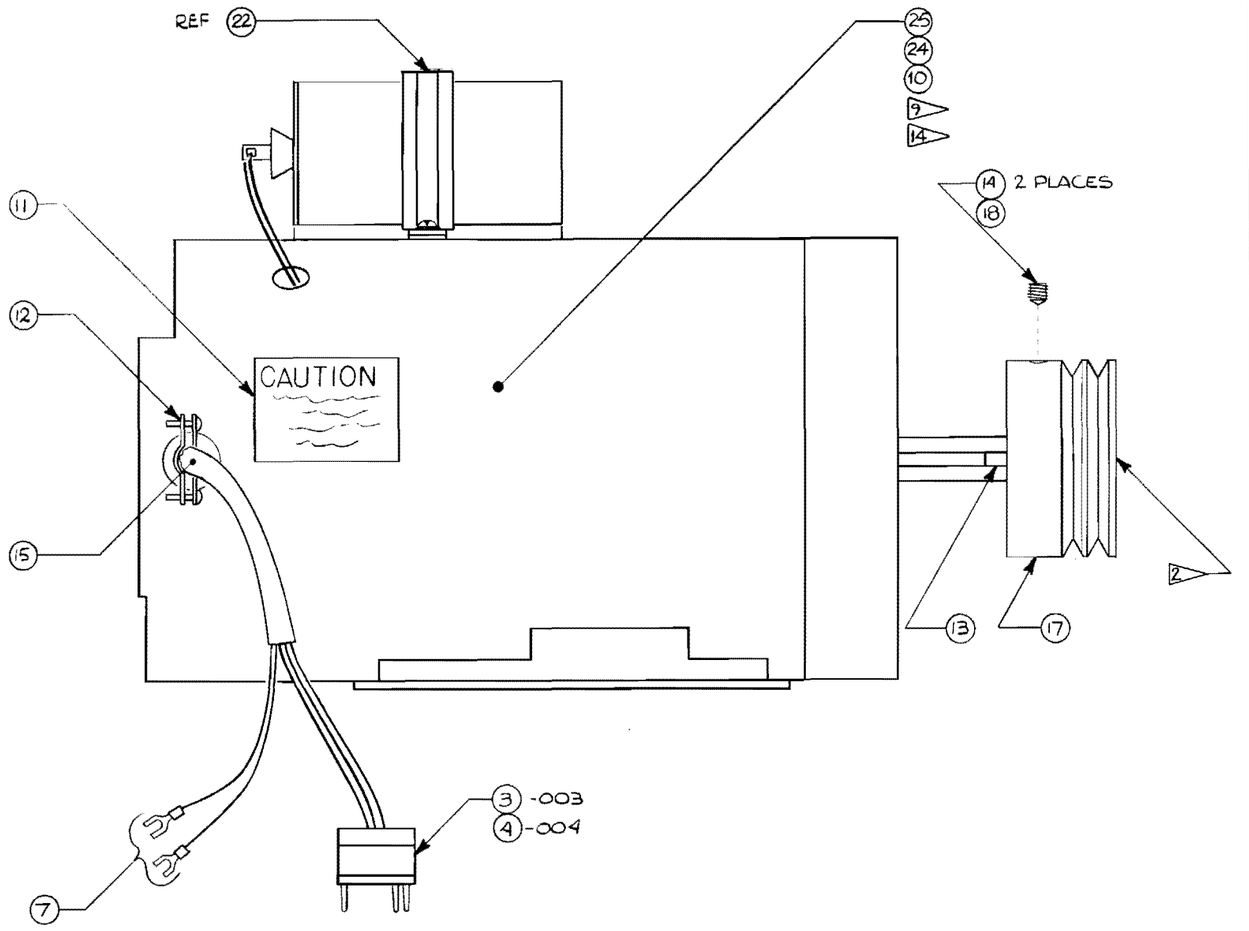
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

DWG. NO. 013657 SH. 2 REV. B

QF02-001887B

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE





PREPRODUCTION

-003 & -004 SHOWN

(LEESON MC FOR 013403-001) 9 14

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± .XXX ± ANGLE ±

DRAWN B. BEEBE 8/16/82 — CHECKED — ENGR. — QUAL. — MFG. — OTHER

QUANTITY PER ASSEMBLY — CLASS CODE MOTA — VALUE CODE Q55VVV

DO NOT SCALE DRAWING PRINTS

Quinton instrument co. 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373

TITLE: MOTOR ASSEMBLY, DRIVE (2M2)

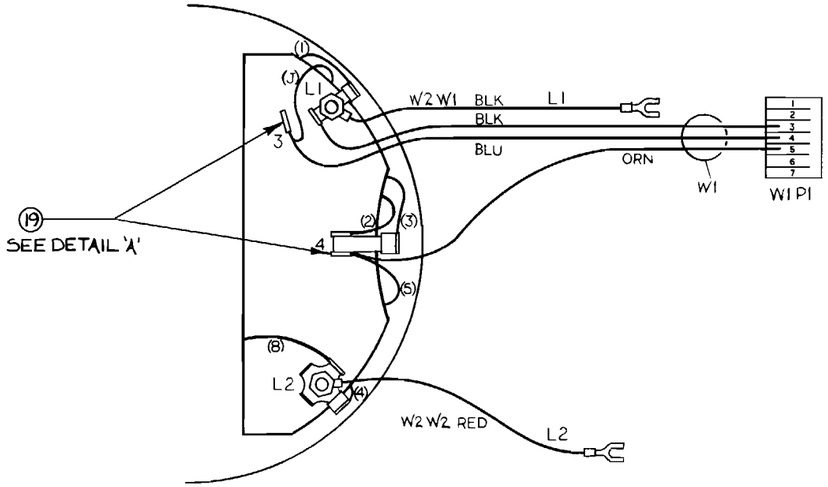
SIZE	MODEL	DWG. NO.	REV.
D	Q55	013657	B

SCALE 1/1 — DIST. CODE — SHEET 3 OF 6

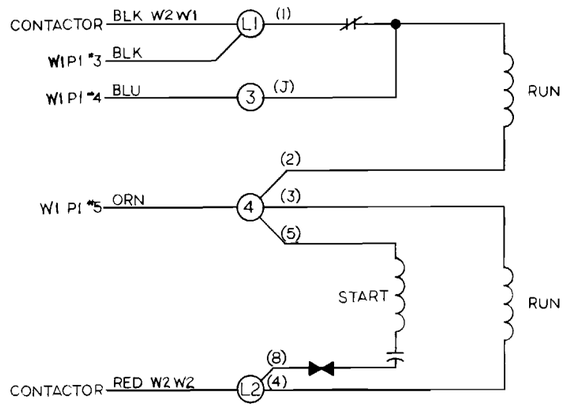
DWG. NO. 013657 SH. 3 REV. B

QF02-0018979

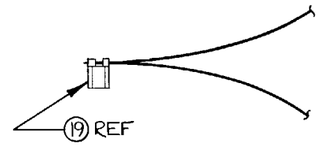
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



WIRING DIAGRAM
-001 (BALDOR) FOR 230 V, 60 Hz



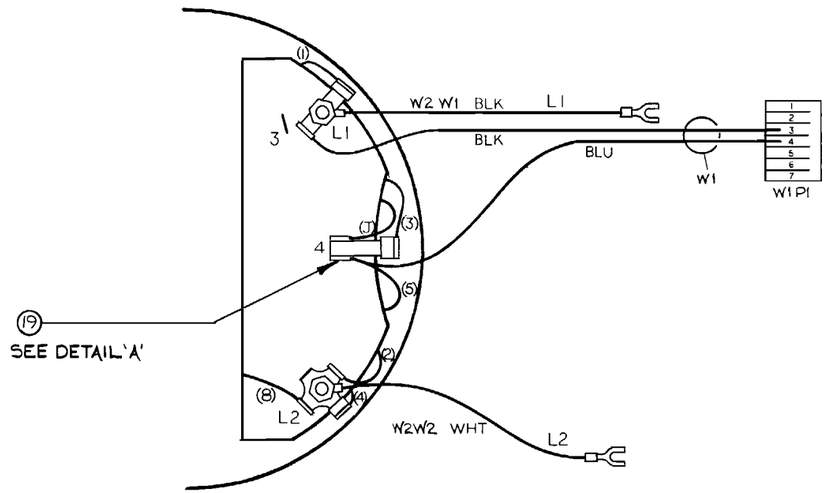
SCHEMATIC DIAGRAM
-001 (BALDOR) FOR 230 V, 60 Hz



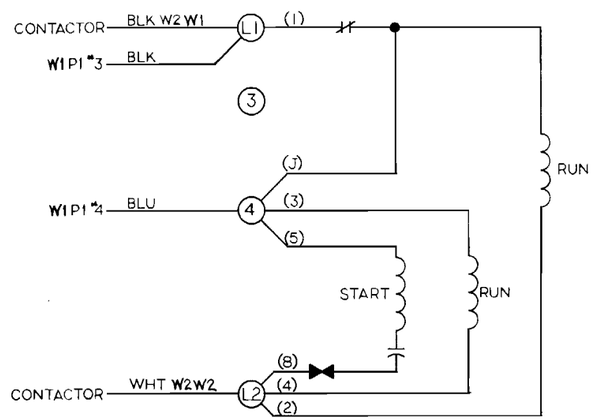
DETAIL 'A'

NOTE: REMOVE EXISTING TERMINAL FROM MOTOR WIRE AND PLACE HARNESS WIRE AND MOTOR WIRE INDICATED INTO ITEM (19).

PREPRODUCTION



WIRING DIAGRAM
-002 (BALDOR) FOR 115 V, 60 Hz



SCHEMATIC DIAGRAM
-002 (BALDOR) FOR 115 V, 60 Hz

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES TOL. .XX ± .XXX ± ANGLE ±
QUANTITY PER ASSEMBLY
CLASS CODE MOTA
VALUE CODE Q55VVV
DO NOT SCALE DRAWING PRINTS

DRAWN 5/21/92
CHECKED 5-24-92
ENGR. 5-25-92
QUAL. 5-25-92
MFG. 5-25-92
OTHER

Quinton instrument co
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

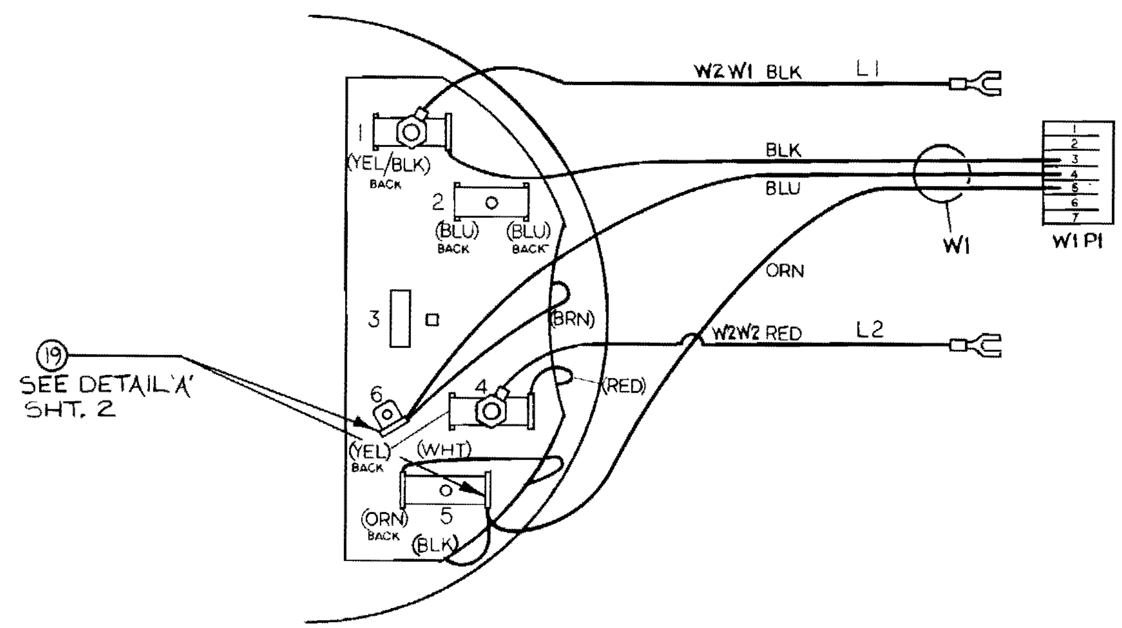
TITLE
MOTOR ASSEMBLY, DRIVE (2M2)

SIZE	MODEL	DWG. NO.	REV.
D	Q55	013657	B
SCALE —	DIST. CODE	SHEET 4 OF 6	

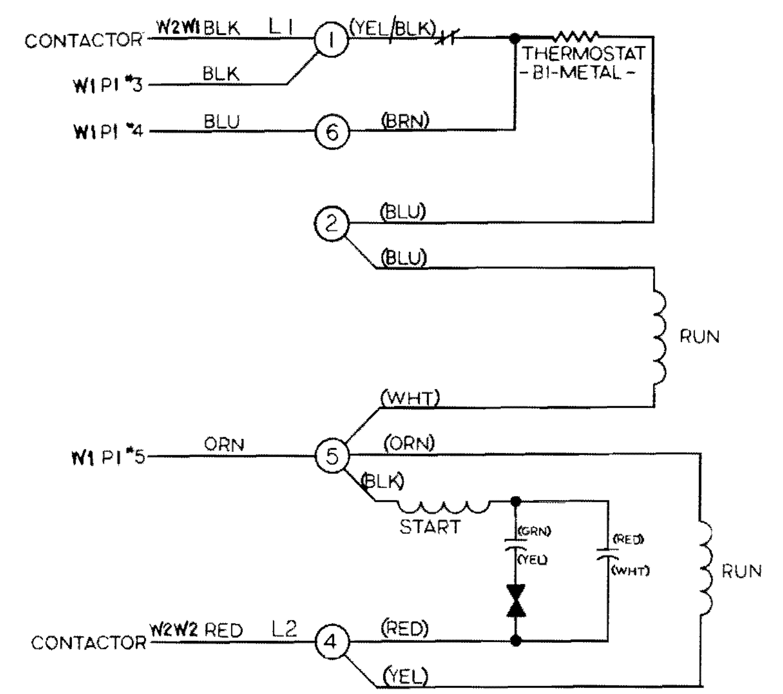
DWG NO 013657 SH 4 REV B

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

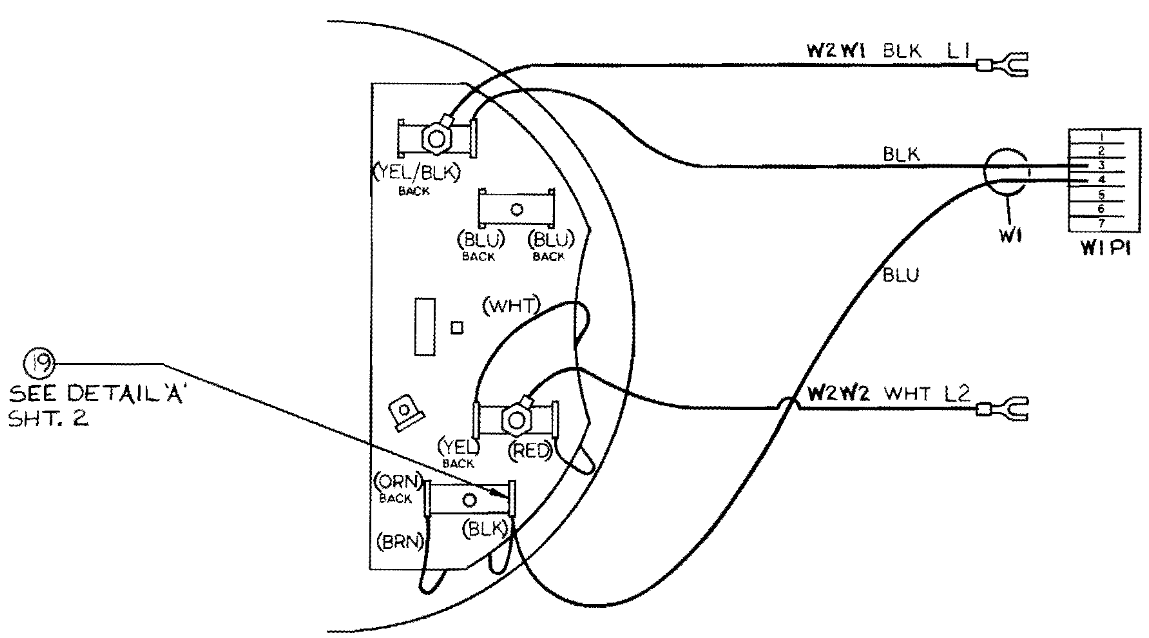


WIRING DIAGRAM
-001 (CENTURY) FOR 230 V, 60 Hz

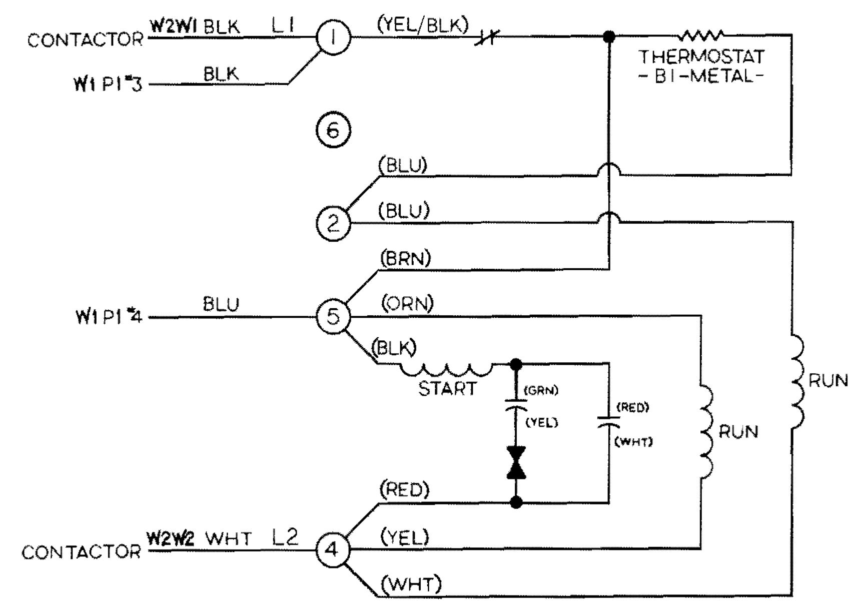


SCHEMATIC DIAGRAM
-001 (CENTURY) FOR 230 V, 60 Hz

PREPRODUCTION



WIRING DIAGRAM
-002 (CENTURY) FOR 115 V, 60 Hz



SCHEMATIC DIAGRAM
-002 (CENTURY) FOR 115 V, 60 Hz

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES — TOL. .XX ± / .XXX ± / ANGLE ±

QUANTITY PER ASSEMBLY

CLASS CODE: MOTA

VALUE CODE: Q55√√√

DO NOT SCALE DRAWING PRINTS

DRAWN	[signature]	5/20/82
CHECKED	[signature]	5-24-82
ENGR.	[signature]	5-25-82
QUAL.	[signature]	5-25-82
MFG.	[signature]	5-25-82
OTHER		

Quinton Instrument Co.
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: MOTOR ASSEMBLY, DRIVE (2M2)

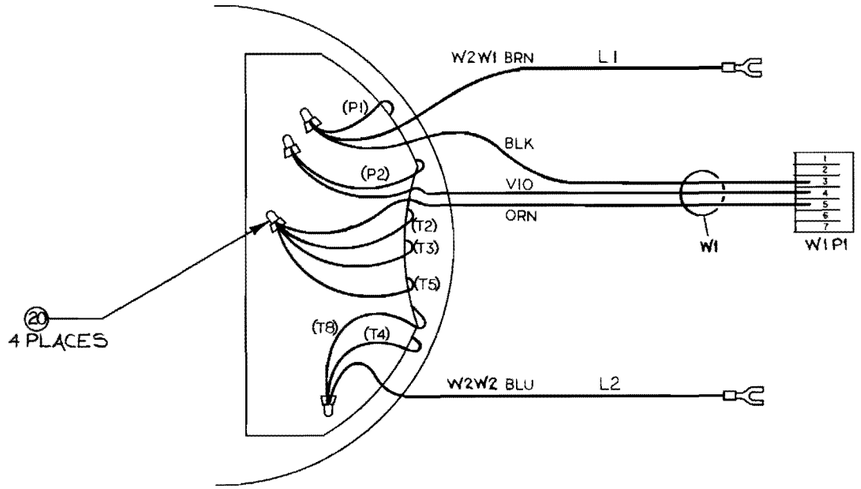
SIZE	MODEL	DWG. NO.	REV.
D	Q55	013657	B

SCALE ______ DIST. CODE ______ SHEET 5 OF 6

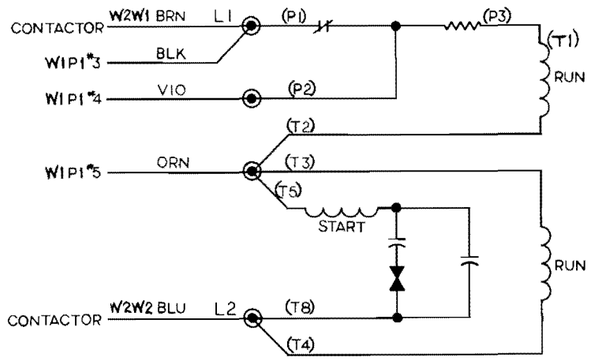
DWG. NO. 013657 SH. 5 REV. B

QF02-0010079

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

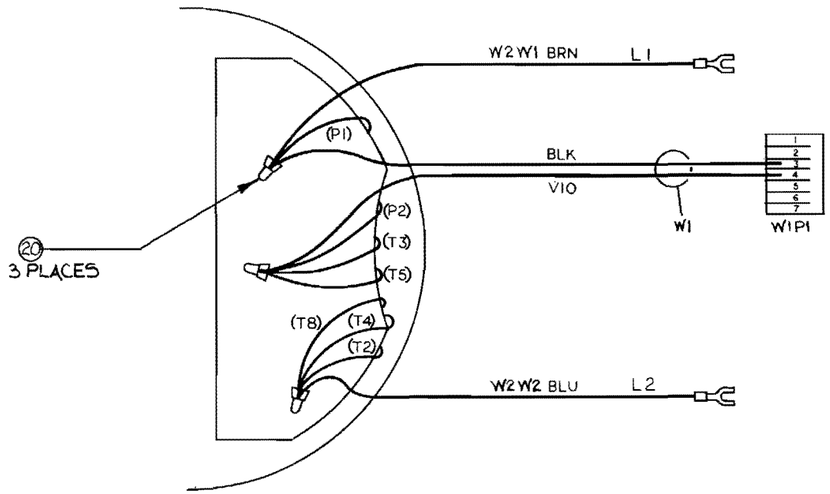


WIRING DIAGRAM
-003 FOR 230V, 50 Hz

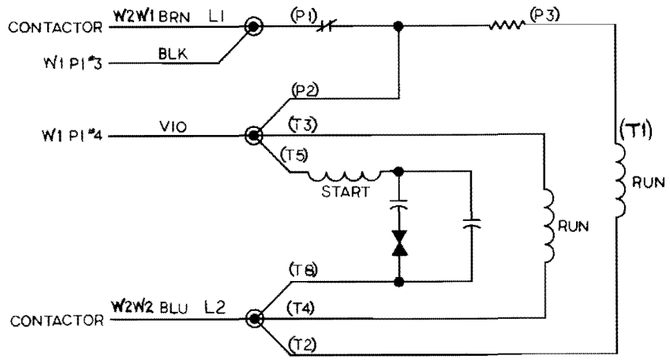


SCHEMATIC DIAGRAM
-003 FOR 230 V, 50 Hz

PREPRODUCTION



WIRING DIAGRAM
-004 FOR 115 V, 50 Hz



SCHEMATIC DIAGRAM
-004 FOR 115 V, 50 Hz

FOR ALL LEESON MOTORS

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

PARTS LIST			
ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION / REFERENCE DESIGNATION

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES — TOL. .XX ±, .XXX ±, ANGLE ±
QUANTITY PER ASSEMBLY
CLASS CODE MOTA
VALUE CODE Q55VVV
DO NOT SCALE DRAWING PRINTS

DRAWN		5/20/82
CHECKED		5-24-82
ENGR.	Richard Zimmerman	5-25-82
QUAL.	Randy Wells	5-27-82
MFG.	Ray K	5-25-82
OTHER		

Quinton instrument co.
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: MOTOR ASSEMBLY, DRIVE (2M2)

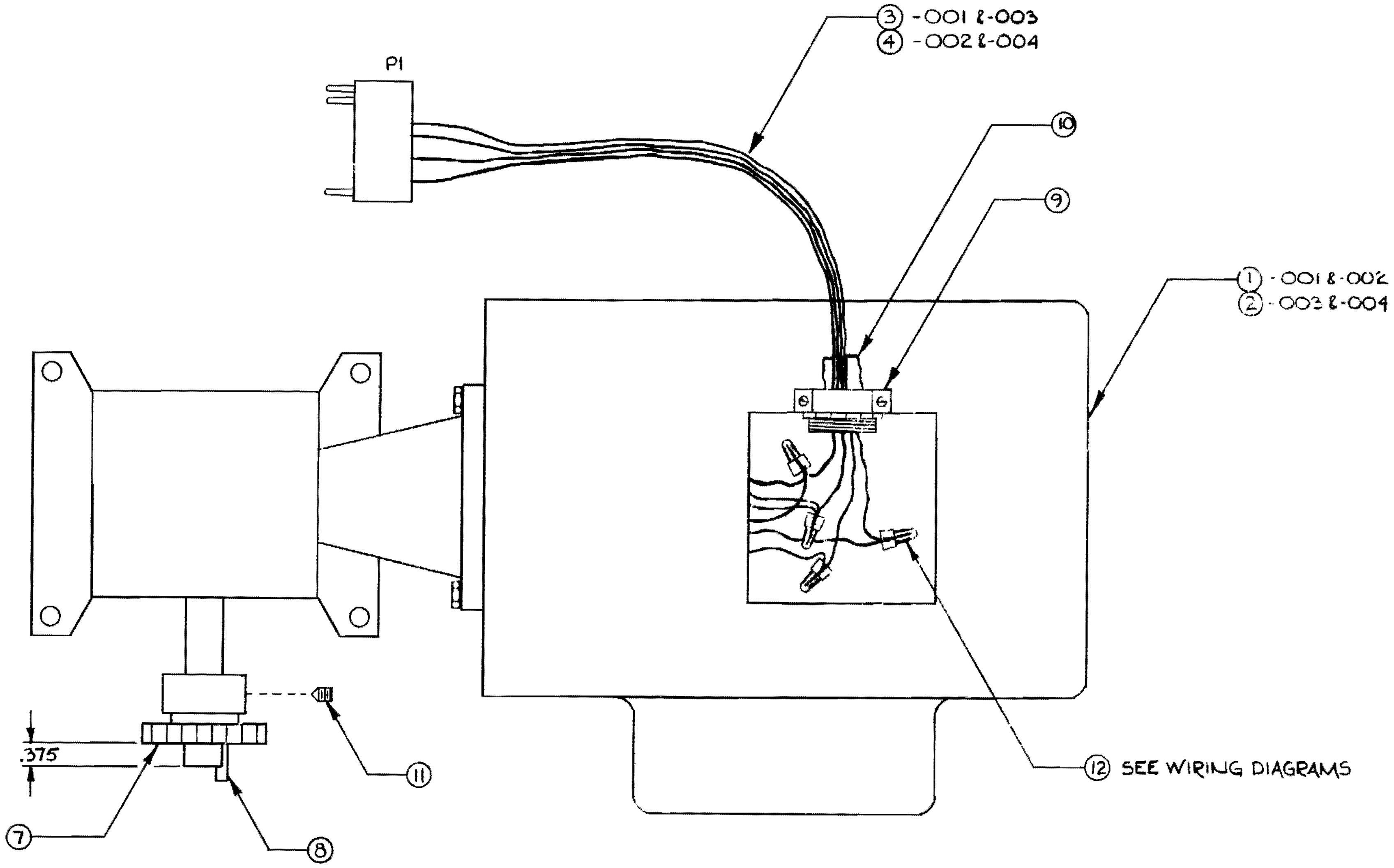
SIZE	MODEL	DWG. NO.	REV.
D	Q55	013657	B

SCALE ____ DIST. CODE SHEET 6 OF 6

DWG. NO. 013657 SH. 6 REV. B

QF02-0018879

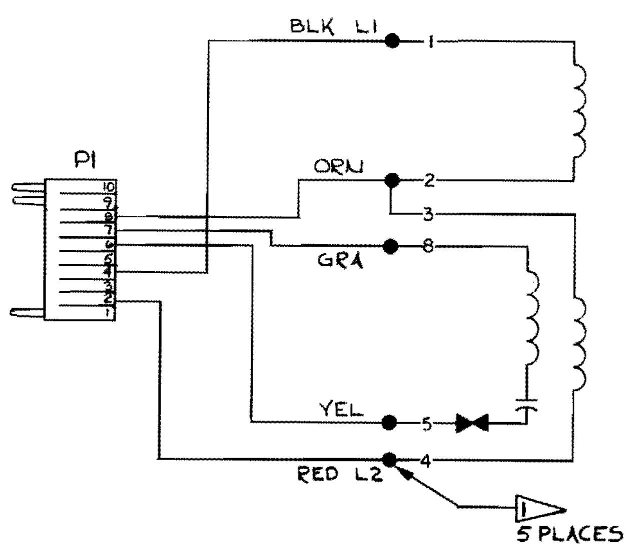
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		1) REVERSE POSITIONS OF THE GRAY AND YELLOW WIRES ON WIRING DIAGRAMS A & B. EFF PT: V DISP REWORK		6/14/82
B		1) ADDED REF. DESIGNATION PREFIX & NOTE 3. EFF PT: VIII DISP: NONE		12/13/82



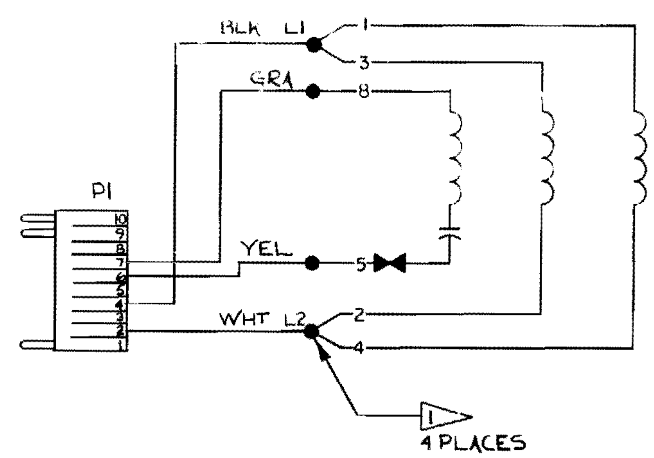
NOTES:

1. ● SYMBOL REPRESENTS ITEM ⑫ (TERMINAL).
2. TAG PART WITH PART NO. AND REV. LETTER TO WHICH MFD.
3. REF. DESIGNATION PREFIX: 2M1

PREPRODUCTION



WIRING DIAGRAM A
208 TO 240 VOLTS
-001 FOR 60 Hz
-003 FOR 50 Hz



WIRING DIAGRAM B
100 TO 120 VOLTS
-002 FOR 60 Hz
-004 FOR 50 Hz

-004	-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
4	5	4	5	12	001487-001	TERMINAL, CLOSED END		
2	2	2	2	11	010833-145	SCREW, SET	1/4-20 x .25	
.01	.01	.01	.01	10	010390-006	SLEEVING		
1	1	1	1	9	004978-001	CLAMP, CABLE		
1	1	1	1	8	002143-001	KEY	1/8 SQ.	
1	1	1	1	7	002289-001	SPROCKET		
				6				
				5				
1	—	1	—	4	013379-002	HARNESS ASSY., GRADE MTR.		
—	1	—	1	3	013379-001	HARNESS ASSY., GRADE MTR.		
1	1	—	—	2	013137-002	MOTOR, GEAR, RT. ANGLE	50 Hz	
—	—	1	1	1	013137-001	MOTOR, GEAR, RT. ANGLE	60 Hz	
	—	—	—	—	-004	MOTOR ASSY., GRADE	100-120 VAC 50 Hz	
—		—	—	—	-003	↕	220-240 VAC 50 Hz	
—	—		—	—	-002	↕	100-120 VAC 60 Hz	
—	—	—		—	-001	MOTOR ASSY., GRADE	208-240 VAC 60 Hz	

PARTS LIST

APPLICATION		
PART NO.	NEXT ASSY. NO.	END ITEM NO.
-001 THRU -004	013032	000208

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± ; .XXX ±.060 ; ANGLE ±

QUANTITY PER ASSEMBLY

CLASS CODE MOTA

VALUE CODE Q55✓✓✓

DRAWN 5/1/82 — CHECKED 5-6-82 — ENGR. Richard Cummings 5-13-82 — QUAL. 5/11/82 — MFG. 5-10-82 — OTHER

Quinton Instruments
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

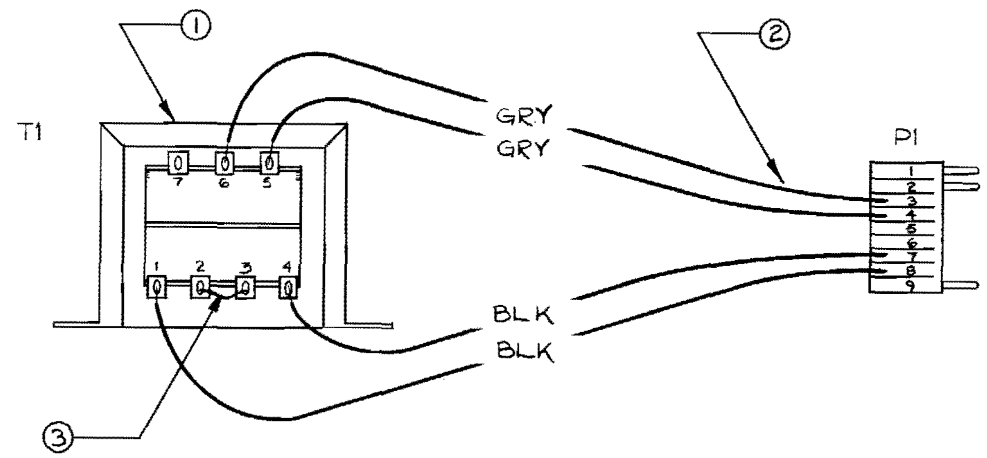
TITLE: MOTOR ASSEMBLY, GRADE (2M1)

SIZE D — MODEL Q55 — DWG. NO. 013673 — REV. B

SCALE 1/1 — DIST. CODE — SHEET 1 OF 1

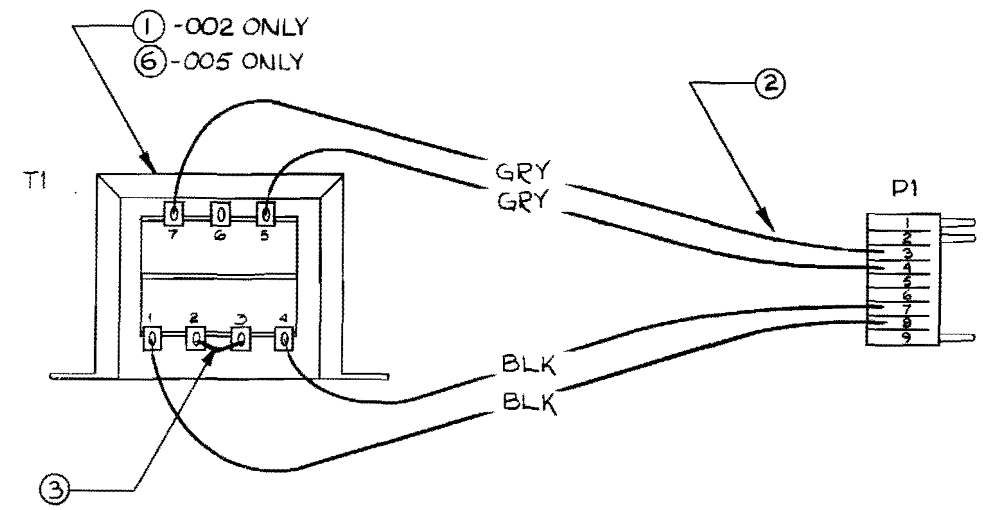
DO NOT SCALE DRAWING PRINTS

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		ITEM 2 P/N 013389-001 WAS 013388-001 EFF. PT: VIII DISP: RECORD CHANGE ADDED -005 CONFIG' AND ITEM 6 EFF PT: IX DISP: NEW CONFIG.	B. Beebe, D Edwards, R.W.	5-25-82, 5-26-82
B		1) ADDED -006 & -007 CONFIG. (2) ADDED ITEMS 7 & 8 (3) ADDED SHT 2. (4) MOVED -003, -004 TO SHEET 2 (5) ADDED REF. DESIG. EFF PT: IX DISP: NEW CONFIG	B Beebe, D Edwards, R.W.	11-19-82, 12/17/82, 12-20-82, 12-17-82
C		1) NUMBERED ALL TERMINALS 2) REDRAWN & REVISED -006 & -007, (TERMINALS & WIRE DESIGNATIONS) EFF PT: VII DISP: REWORK	B Beebe, D Edwards, R.W.	1-31-83, 2/8/83, 2-11-83, 2-1-83



-001

-003, -004, -006, -007 SHOWN ON SHT 2



-002 & -005

NOTES:

1. MARK PART WITH PART NO AND REV LTR TO WHICH MFD.

PREPRODUCTION

-007	-006	-005	-004	-003	-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
1	1	—	—	—	—	—	8	014631-001	TRANSFORMER		Q65
1	1	—	—	—	—	—	7	013389-002	WIRE HARNESS, XFMR.		
	—	—	—	—	—	—	—	-007	TRANSFORMER ASSY	208 VAC, 60 Hz	Q65
—		—	—	—	—	—	—	-006	TRANSFORMER ASSY.	220-240 VAC, 50/60 Hz	Q65
—	—		—	—	—	—	—	-005	TRANSFORMER ASSY.		Q55
—	—	1	—	—	—	—	6	012317-001	TRANSFORMER		
2	2	2	2	2	2	2	5	001899-001	TIE, CABLE		
.01	.01	.01	.01	.01	—	—	4	011506-004	SLEEVING, TEFLON	20 AWG	
.01	.01	.01	.01	.01	.01	.01	3	010612-005	WIRE, BUSS	22 AWG	
—	—	1	1	1	1	1	2	013389-001	WIRE HARNESS, XFMR.		
—	—	—	1	1	1	1	1	013087-001	TRANSFORMER		
—	—	—		—	—	—	—	-004	TRANSFORMER ASSY.	100 VAC, 50/60 Hz	Q55
—	—	—	—		—	—	—	-003	↕	110-120 VAC, 60 Hz	Q55
—	—	—	—	—		—	—	-002	↕	208 VAC, 60 Hz	Q55
—	—	—	—	—	—		—	-001	TRANSFORMER ASSY.	220-240 VAC, 50/60 Hz	Q55

PARTS LIST

QUANTITY PER ASSEMBLY

PART NO.	NEXT ASSY. NO.	END ITEM NO.
-007 -006	014493	000221
-001 THRU -005	013032	000208

APPLICATION

UNLESS OTHERWISE SPECIFIED ALL DIM. ARE IN INCHES TOL. .XX ± .XXX ± ANGLE ±

CLASS CODE XFMA

VALUE CODE 000208

DO NOT SCALE DRAWING PRINTS

DRAWN	[signature]	5/6/82
CHECKED	[signature]	5-7-82
ENGR.	Dave Edwards	5/20/82
QUAL.	Randy Walls	5-20-82
MFG.	[signature]	5-20-82
OTHER		

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
TRANSFORMER ASSEMBLY (2T1)

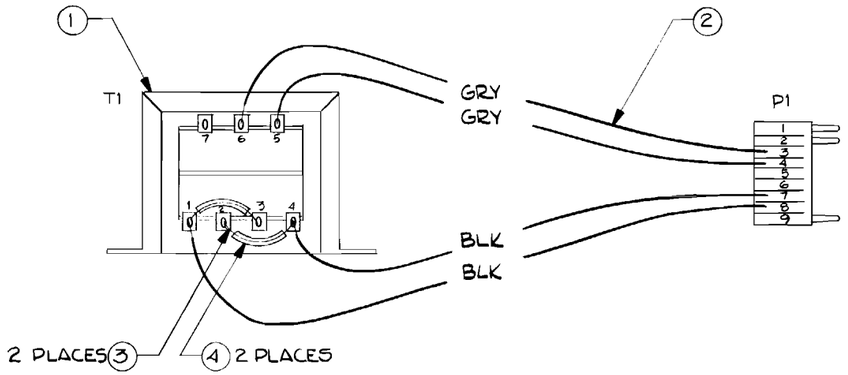
SIZE D | MODEL Q55 Q65 | DWG. NO. 013677 | REV. C

SCALE 1/1 | DIST. CODE | SHEET 1 OF 2

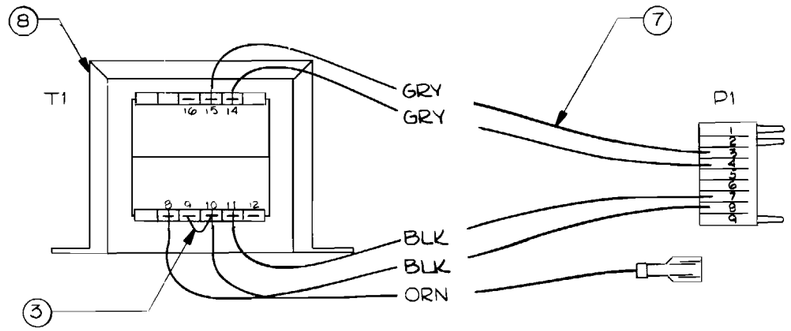
DWG. NO. 013677 SH. 1 REV. C

QF02-0018979

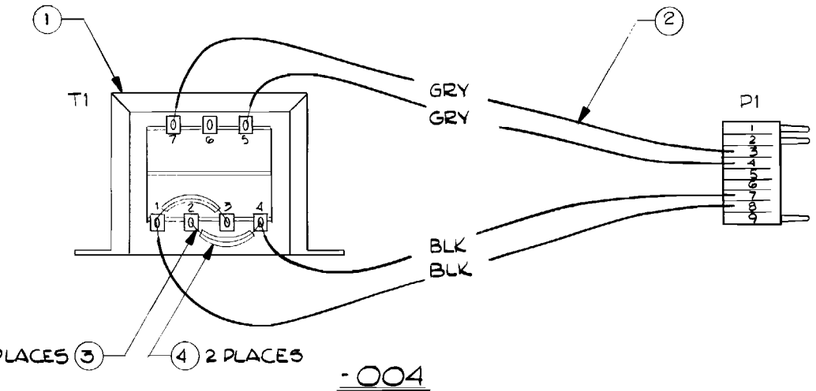
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



-003



-006



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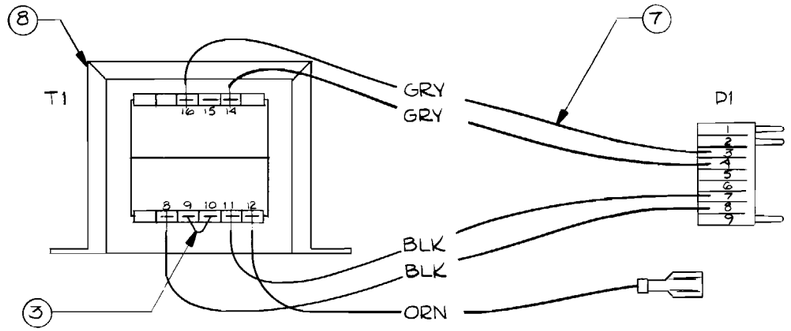


-007

PREPRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
	PARTS LIST			

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES
TOL. .XX ± .XXX ± ANGLE ±
QUANTITY PER ASSEMBLY
CLASS CODE
VALUE CODE
DO NOT SCALE DRAWING PRINTS

DRAWN B. Tuttle 11/9/88
CHECKED
ENGR.
QUAL.
MFG.
OTHER

Quinton Instruments
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: TRANSFORMER ASSEMBLY

SIZE	MODEL	DWG. NO.	REV.
D	Q55 Q65	013677	C

SCALE | DIST. CODE | SHEET 2 OF 2

DWG. NO. 013677 SH. 2 REV. C

QF02-0018979

SEE SHEET 2 FOR NOTES

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		(1) ITEM 81 WAS 013391-001, QTY 1; -001 & -003. ECP (2) ITEM 49 QTY WAS 12; (3) ITEM 47 QTY WAS 20, (4) ITEM 45 QTY WAS 8, (5) ADDED ITEM 86; ITEM 21 WAS QTY 2 FOR -002. (6) ADDED ITEM 87; ITEM 20 WAS QTY 1 FOR -002. (7) ADDED ITEM 88 ITEM 13 QTY WAS 1 FOR -001 & -003. (8) ADDED ITEM 89, ITEM 39 WAS QTY 1 FOR -002. (9) ADDED DETAIL "F" (10) ADDED SH.5 (11) EXTENSIVELY REVISED SH.2. EFF.PT: VIII, DISP: NONE.	300	4-27-83 6-30-83 7-1-83 7-1-83

ITEM NUMBER				PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
-003	-002	-001			PARTS LIST		
QTY. PER ASSY.							
—	1	—	89	014754-001	STARTER ASSY		A5
1	—	1	88	013064-001	INPUT SHAFT ASSY		
—	1	—	87	009910-002	PULLEY	7M2.64 DIA, 2 GROOVE	
—	2	—	86	003792-006	BELT, V		
4	4	4	85	014481-001	WASHER, SOUND ISOLATING		
.01	.01	.01	84	001739-002	ADHESIVE, LOCTITE	#242	
—	1	—	83	013387-003	HARNESS ASSY.	CONTACTOR	W1
1	—	1	82	013387-001	HARNESS ASSY.	CONTACTOR	W1
—	1	—	81	014765-001	HARNESS ASSY	CONTACTOR/XRANS/PCB	W5
1	1	1	80	013384-001	HARNESS ASSY.	FAN	W3
1	1	1	79	013377-001	HARNESS ASSY.	SPEED CHANGE MOTOR	W2
1	1	1	78	013382-001	HARNESS ASSY.	BELT SWITCH	W4
2	2	2	77	014551-001	SPACER	STRAIN RELIEF PLATE ASSY.	
2	2	2	76	012990-001	BEARING		
2	2	2	75	002594-001	COLLAR, SET		
1	1	1	74	001403-001	SCREW, SET	1/4-20 × 3/8" L., NYLON	
1	1	1	73	010833-144	SCREW, SET	#10-32 × 1/4" L., STEEL	
1	1	1	72	001100-004	KEY, STEEL	3/16 SQ. × 1.50 L.	
8	8	8	71	013767-001	WASHER, ISOLATION	1/4, PHENOLIC	
2	2	2	70	010820-207	SCREW, HEX CAP	3/8-16 × 2-1/2" L	
8	8	8	69	001164-005	WASHER, FLAT	5/16	
4	4	4	68	001177-001	NUT, HEX	5/16-18	
1	1	1	67	013751-001	STUD, SPEED CHANGE	5/16-18 × 1-3/4" L.	
8	8	8	66	010820-266	SCREW, HEX CAP	5/16-18 × 3-1/4" L.	
2	2	2	65	010820-126	SCREW, HEX CAP	5/16-18 × 1-1/2" L.	
2	2	2	64	010820-106	SCREW, HEX CAP	5/16-18 × 1-1/4" L.	
10	10	10	63	001164-004	WASHER, FLAT	1/4	
4	4	4	62	011881-006	NUT, LOCK	1/4-20	
2	2	2	61	010826-105	SCREW, ALLEN FLH.	1/4-20 × 1-1/4" L.	
4	4	4	60	010820-125	SCREW, HEX CAP	1/4-20 × 1-1/2" L.	
6	6	6	59	010819-245	SCREW, HEX CAP	1/4-20 × 3/4" L.	
2	2	2	58	010819-205	SCREW, HEX CAP	1/4-20 × 1/2" L.	
2	2	2	57	002158-001	NUT, HEX	#10-32	
1	1	1	56	008642-001	SCREW, SLOTTED HEX	GREEN #10-32 × 3/8" L	E1
1	1	1	55	001182-001	WASHER, EXT. STAR	#10	
2	2	2	54	001164-003	WASHER, FLAT	#10	
2	2	2	53	010827-204	SCREW, PNH, PHILLIPS	#10-32 × 1/2"	
2	2	2	52	010827-212	SCREW, PNH, PHILLIPS	#10-24 × 1/2" L.	
2	2	2	51	001575-001	NUT, HEX	#8-32	
2	2	2	50	010827-183	SCREW, PNH, PHILLIPS	#8-32 × 3/8" L.	
13	13	13	49	006769-001	RIVET, "POP"	1/8" DIA. × 3/8" L., AL.	
.01	.01	.01	48	001899-001	TIE, CABLE	MINI	
23	23	23	47	011560-002	TIE MOUNT	#6 HOLE	
4	4	4	46	001767-001	NUT, HEX	#6-32	
16	16	16	45	010511-005	WASHER, SPLIT	#6	
10	10	10	44	005958-001	SPACER, HEX	#6-32 × 3/8" L.	
2	2	2	43	001164-001	WASHER, FLAT	#6	
2	2	2	42	010827-322	SCREW, PNH, PHILLIPS	#6-32 × 1" L.	
2	2	2	41	010827-202	SCREW, PNH, PHILLIPS	#6-32 × 1/2" L.	
16	16	16	40	010827-142	SCREW, PNH, PHILLIPS	#6-32 × 1/4" L.	
1	—	1	39	014486-001	CONTACTOR		K1
1	1	1	38	013375-001	PCB BRACKET		
2	2	2	37	001210-001	ROLL PIN		
2	2	2	36	002298-001	WHEEL		

ITEM NUMBER				PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
-300	-200	-001			PARTS LIST		
QUANTITY PER ASSEMBLY							
1	1	1	35	002291-001	ELEV. CHAIN		
1	1	1	34	002290-001	ELEV. SPROCKET	TORQUE LIM.	
1	1	1	33	002288-001	TORQUE LIMITER		
1	1	1	32	003427-001	POT. DRIVE CHAIN		
1	1	1	31	001494-001	ELEV. POT. SPROCKET		
1	1	1	30	013044-001	PINION SHAFT		
1	1	1	29	011738-001	COOLING FAN		F1
1	1	1	28	013374-001	FAN BRACKET		
1	1	1	27	014561-001	ELEV. SROCKET	ELEV. POT. – SHAFT	
1	1	1	26	012984-001	HEADFRAME		
1	1	1	25	013061-001	ELEV. POT. BRACKET		
1	1	1	24	013062-001	BELT, VARIABLE SPEED		
1	1	1	23	013705-002	BEARING CAP		
3	3	3	22	013705-001	BEARING CAP		
2	—	2	21	003792-005	BELT, V	7M730	
1	—	1	20	012993-001	PULLEY	7M 2.20 DIA, 2 GROOVE	
1	1	1	19	013077-001	TACHOMETER ASSY.		A3
2	2	2	18	012991-001	BRACKET, HANDRAIL		
2	2	2	17	014555-001	RACK GEAR		
1	1	1	16	013066-001	SPINDLE ASSY., SPD. CHNG.		
1	1	1	15	013089-001	ELEV. POT. ASSY.		R1
1	1	1	14	013068-001	OUTPUT SHAFT ASSY.		
—	1	—	13	013064-002	INPUT SHAFT ASSY.		
—	1	—	12	014100-005	PLATE ASSY., STRAIN RELIEF	200/240V 50Hz	A4
1	—	1	11	014100-004	PLATE ASSY., STRAIN RELIEF	200/240V 60Hz	A4
—	1	—	10	013013-003	PCB ASSY., CONTROL	220/240V 50Hz	A1
1	—	1	9	013013-001	PCB ASSY., CONTROL	200/240V 60Hz	A1
1	—	—	8	013677-007	TRANSFORMER ASSY.	208V 60Hz	T1
—	1	1	7	013677-006	TRANSFORMER ASSY.	220/240V 50/60Hz	T1
—	1	—	6	013673-003	MOTOR ASSY, GRADE	220/240V 50Hz	M1
1	—	1	5	013673-001	↕ ↕ , GRADE	208/240V 60Hz	M1
—	1	—	4	013067-003	↕ ↕ , SPD. CHNG.	50Hz	A2
1	—	1	3	013067-002	↕ ↕ , SPD. CHNG.	60Hz	A2
—	1	—	2	014560-002	↕ ↕ , DRIVE	200/240V 50Hz	M2
1	—	1	1	014560-001	MOTOR ASSY., DRIVE	208/240V 60Hz	M2
/	—	—	—	-003	HEADFRAME ASSY.	208V 60Hz 1Ø	
—	/	—	—	-002	HEADFRAME ASSY.	230V 50Hz 1Ø	
—	—	/	—	-001	HEADFRAME ASSY.	230V 60Hz 1Ø (STD)	

PREPRODUCTION

ALL	000221	000221
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES — TOL. .XX ± .XXX ± ANGLE ±

DRAWN		12/22/82
CHECKED	B.K. FLAHN	1/14/83
ENGR.	3RD	1/17/83
QUAL.	Randy Wells	1-17-83
MFG.		1/18/83
OTHER		

CLASS CODE FRAA
VALUE CODE Q65
DO NOT SCALE DRAWING PRINTS

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
HEADFRAME ASSY., Q65 TREADMILL

SIZE	MODEL	DWG. NO.	REV.
D	Q65	014493	A

SCALE —— DIST. CODE SHEET 1 OF 5

DWG. NO. 014493 SH 1 REV A

QF03-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

M1 GRADE MOTOR

T1 XFMR

K1 CONTACTOR

F1 FAN

A4 STRAIN RELIEF PLATE

A1 P.C.B. ASSY.

M2 DRIVE MOTOR

A3 TACH

R1 ELEV. POT

C1 A2, SPEED CHANGE MOTOR ASSY

A5K1

A1 (SIMPLIFIED) (P1, P3-5, P7-9 & P11 SAME AS -001 & -003)

DETAIL "E" -002 (50HZ) ONLY (OTHER AREAS SAME AS -001 & -003)

NOTES:

1. REF. DESIGNATION PREFIX: 2.
2. TAG WITH PART NO. AND REV. LETTER TO WHICH MFD.
3. USE ITEM 84, ADHESIVE, ON ALL THREADED CONNECTIONS.

4 W3 CABLE (TO F1 FROM A1P5) HAS INTERCHANGEABLE BLACK LEADS FOR F1 (FAN HOOKUP), AND A4W3 CABLE (FROM A1P10 TO W3J1 AND K1) HAS INTERCHANGEABLE VIOLET WIRES TO K1 (CONTACTOR).

5 SEE SHEET 5 FOR WIRE ROUTING. WIRES MUST NOT BE SUBJECT TO PINCHING OR ABRASION; ROUTE AWAY FROM MOVING PARTS AND SHARP EDGES. USE WIRE TIES, ITEM 48, AS REQUIRED.

-001 & -003 SHOWN (60HZ)
(-002 SIMILAR (50HZ), EXCEPT AS SHOWN IN DETAIL "E")

PREPRODUCTION

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST			

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES TOL. .XX ±, .XXX ±, ANGLE ±

DRAWN 12/24/82 — CHECKED J.K. PLAHN 1/14/83 — ENGR. 1/17/83 — QUAL. — MFG. — OTHER

ITEM NUMBER — QUANTITY PER ASSEMBLY — CLASS CODE — VALUE CODE

DO NOT SCALE DRAWING PRINTS

Quinton — 2121 TERRY AVENUE, SEATTLE, WASHINGTON 98121, 206/223-7373

TITLE: Q65 HEADFRAME ASSY.

SIZE	MODEL	DWG. NO.	REV.
D	Q65	014493	A

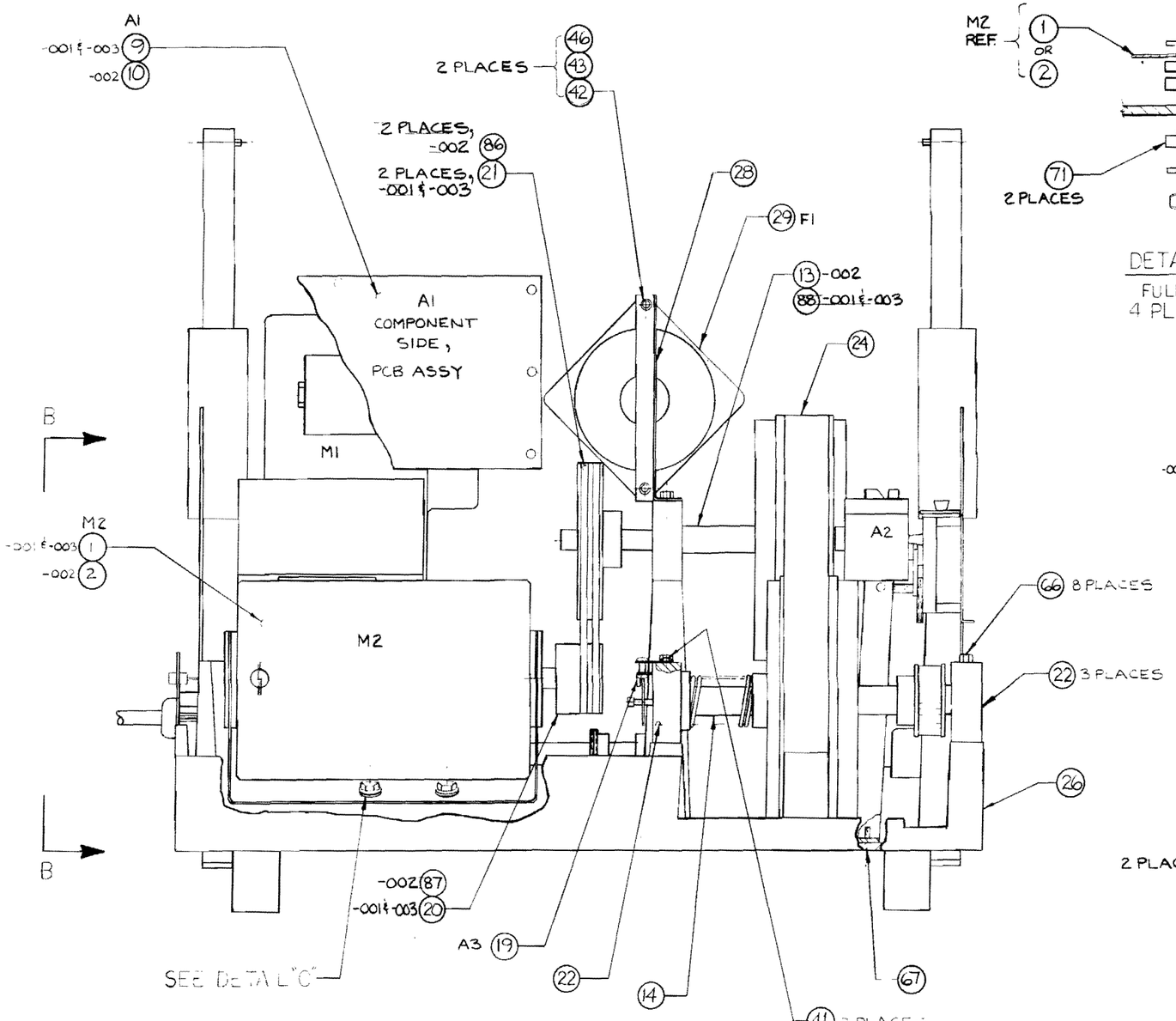
SCALE — DIST. CODE — SHEET 2 OF 5

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

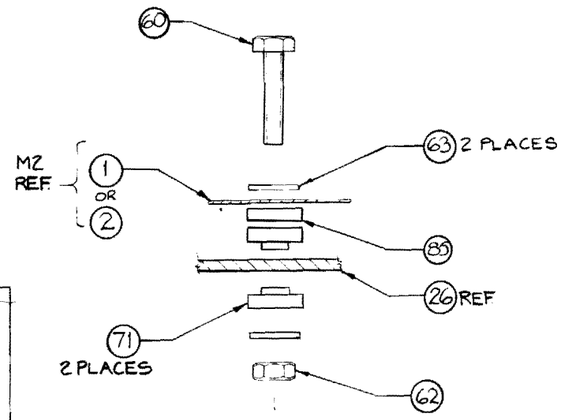
DWG. NO. 014493 SH. 2 REV. A

QF02-0018879

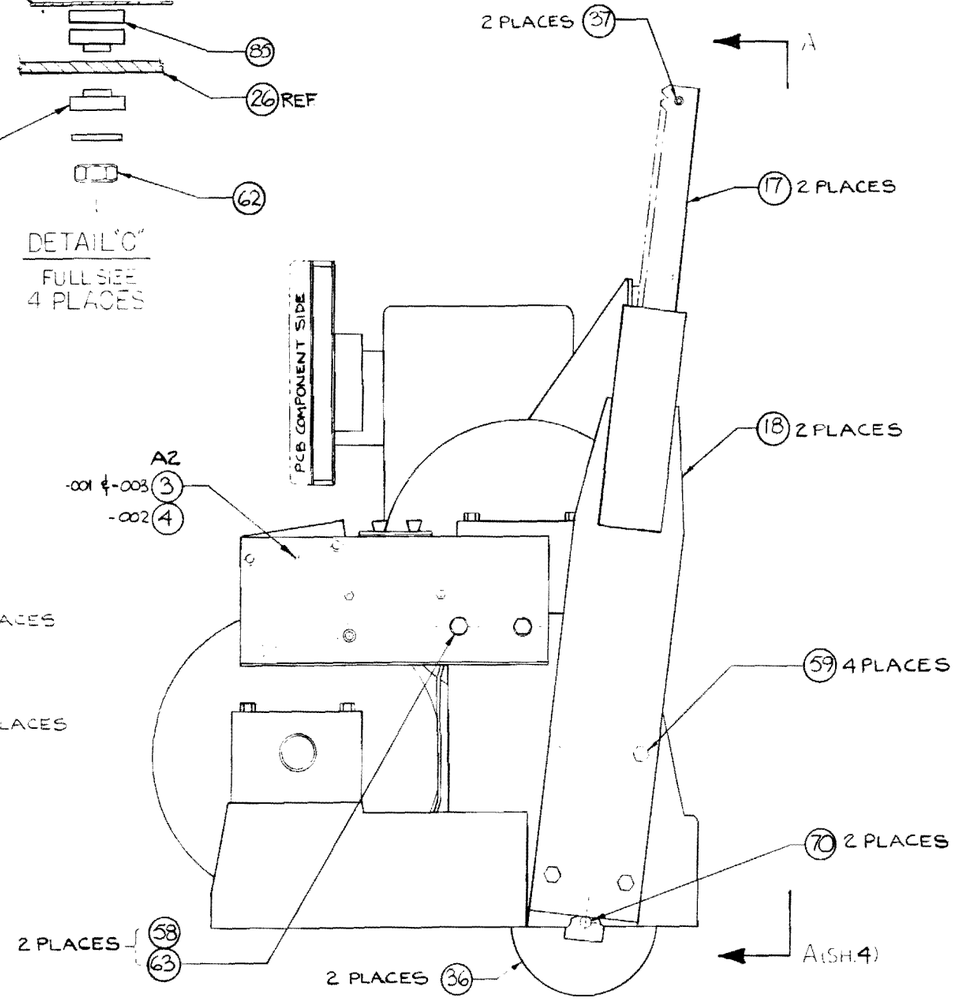
REVISIONS				
LTR	ZONE	DESCRIPTION	APPROVED	DATE



-001 SHOWN
(-002 AND -003 NOTED)



DETAIL "C"
FULL SIZE
4 PLACES



PREPRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED
ALL DIM ARE IN INCHES
TOL: XX ± —, .XXX ± —, ANGLE ±

DRAWN	SKP / REB	12/23/82
CHECKED	J.K. PLANN	1/19/83
ENGR	BDD	1/17/83
QUAL.		
MFG.		
OTHER		

QUANTITY PER ASSEMBLY
CLASS CODE
VALUE CODE

DO NOT SCALE DRAWING PRINTS

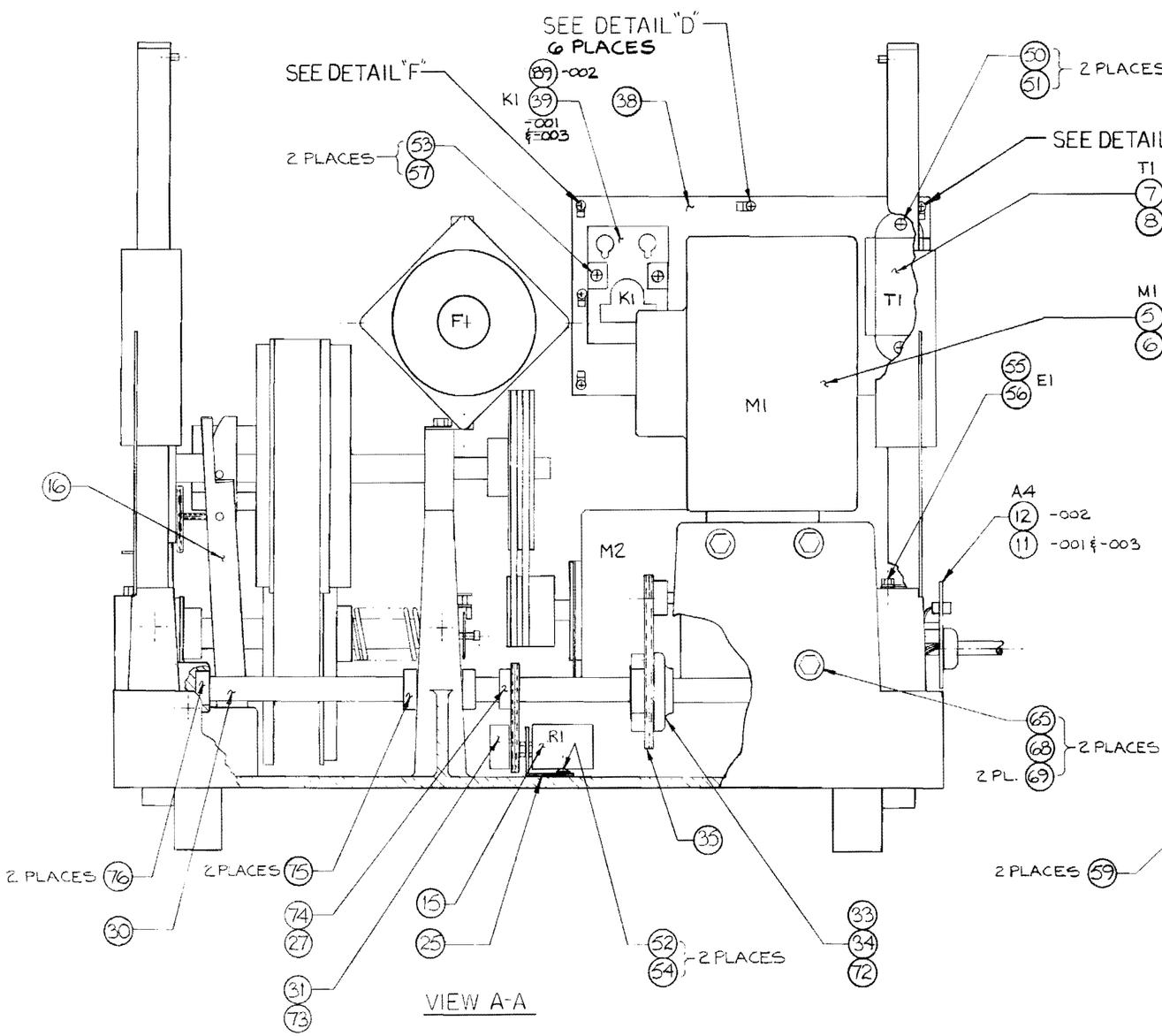
Quinton instrument co
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206 223 7373

TITLE
Q65
HEADFRAME ASSY

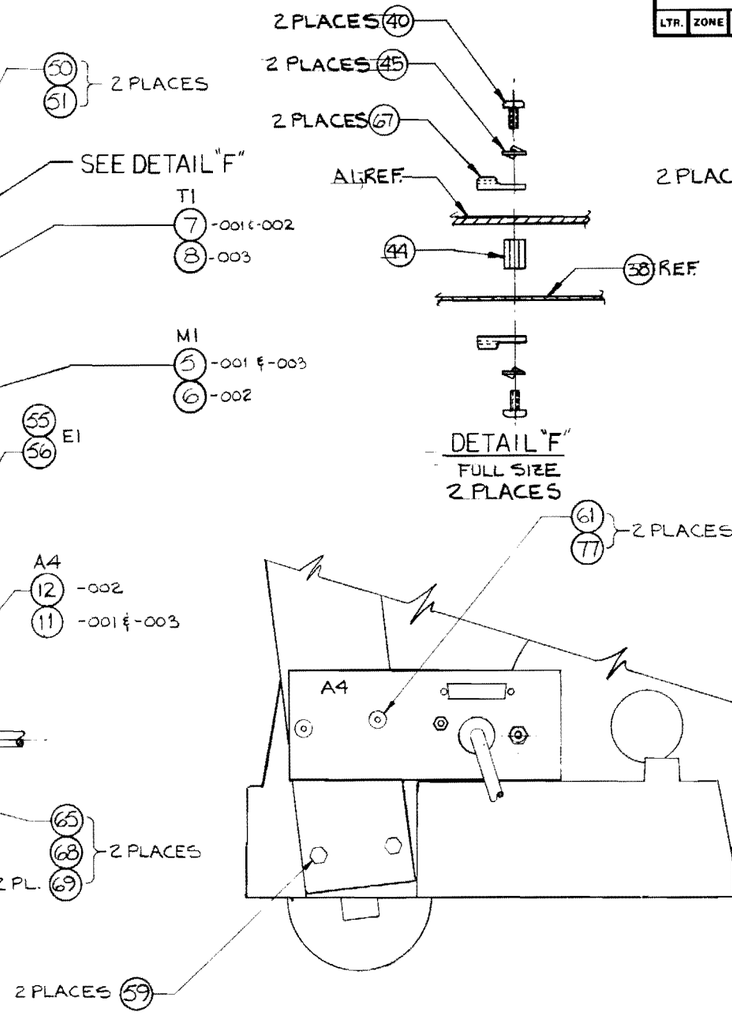
SIZE	MODEL	DWG. NO.	REV.
D	Q65	014493	A
SCALE 1/2	DIST. CODE	SHEET 3 OF 5	

DWG NO 014493 SH 3 REV A

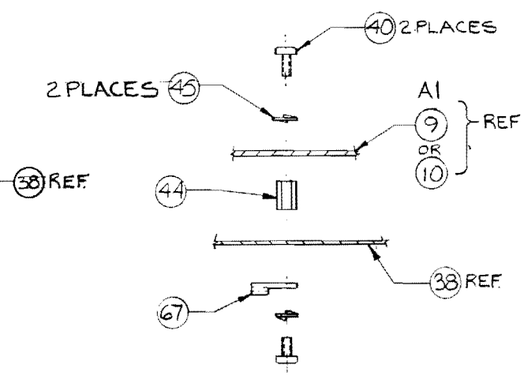
REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



VIEW A-A



VIEW B-B



DETAIL "F"
FULL SIZE
2 PLACES

DETAIL "D"
FULL SIZE
8 PLACES

PREPRODUCTION

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

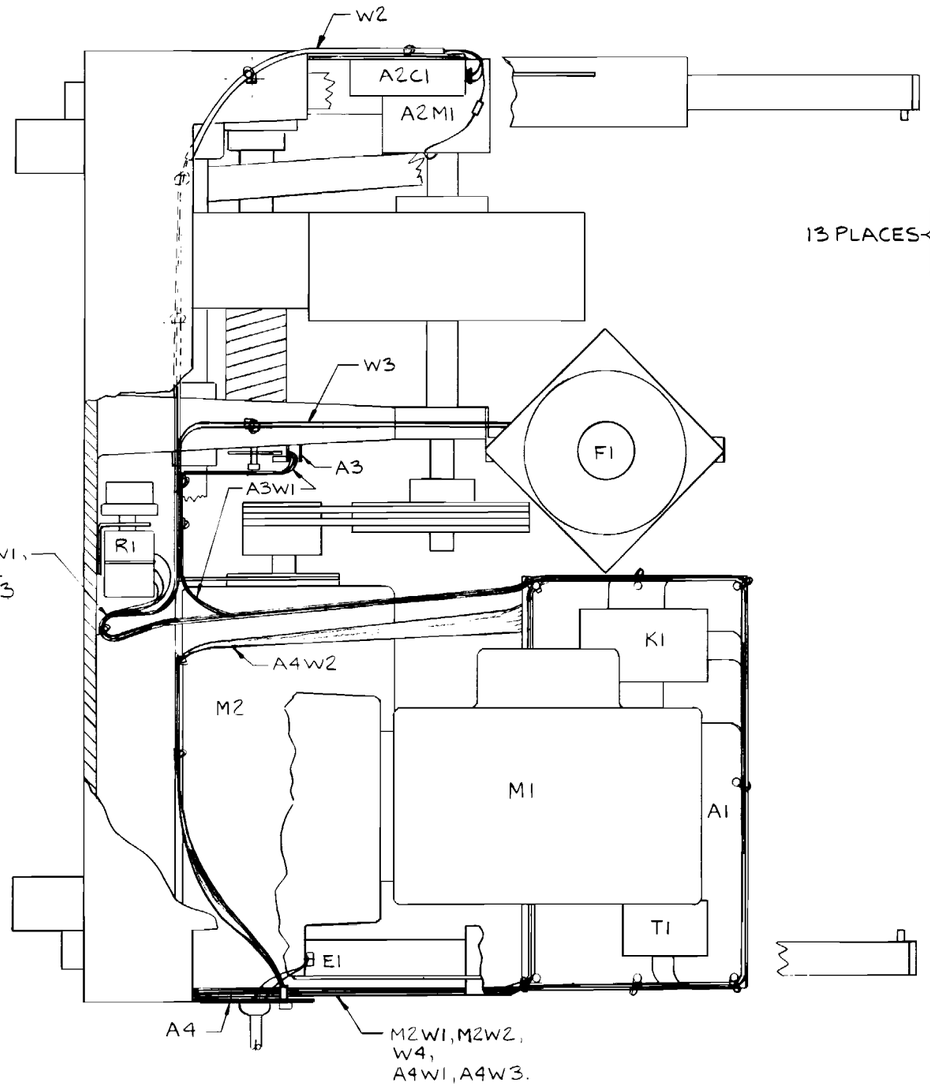
ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
	PARTS LIST			

UNLESS OTHERWISE SPECIFIED		DRAWN SKP/REB	12/23/02	Quinton Instrument Co. 2121 TERRY AVENUE SEATTLE, WASHINGTON 98121 206/223-7373
ALL DIM. ARE IN INCHES	TOL. .XX ±	CHECKED S.K. PLAHN	1/16/03	
	.XXX ±	ENGR. RDD	1/7/03	TITLE Q65 HEADFRAME ASSY
	ANGLE ±	QUAL.		
QUANTITY PER ASSEMBLY	CLASS CODE ____	MFG.		SIZE D · MODEL Q65 · DWG. NO. 014493 · REV. A
	VALUE CODE ____	OTHER		SCALE 1/2 · DIST. CODE · SHEET 4 OF 5
DO NOT SCALE DRAWING PRINTS				

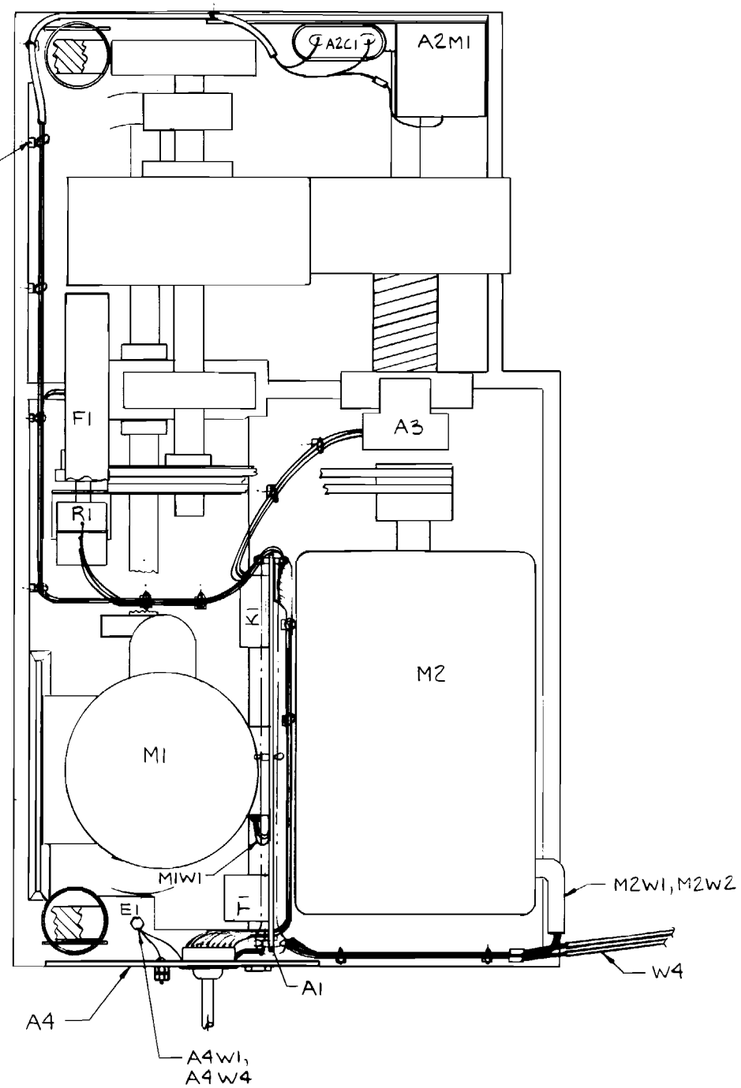
DWG. NO. 014493 SH. 4 REV. A

QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE



13 PLACES (47) (48) (49)



WIRE ROUTING DIAGRAM
(MECHANICAL DETAILS SIMPLIFIED)

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES TOL. .XX ± — .XXX ± — ANGLE ± —
QUANTITY PER ASSEMBLY
CLASS CODE —
VALUE CODE —
DO NOT SCALE DRAWING PRINTS

DRAWN S.K. FLAHN 3-24-83
CHECKED
ENGR.
QUAL.
MFG.
OTHER

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE
Q65
HEADFRAME ASSY

SIZE	MODEL	DWG. NO.	REV.
D	Q55	014493	A

SCALE NONE | DIST. CODE | SHEET 5 OF 5

DWG. NO. 014493 SH. 5 REV. A

QF02-0018879

NOTES:

1. REF. DESIGNATION IS 1.

2. TAG WITH PART NO. AND REV. LTR. TO WHICH MFD.

3. WRAP CABLE TIE, ITEM 25, AROUND W1P1 AFTER W1P1 AND A1W1J1 ARE ENGAGED AND SPRING LATCHES ARE IN UP POSITION, SO THAT W1 CANNOT BE REMOVED FROM CONTROLLER.

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE
A		ITEM 13 PART NO. WAS 010663-001 EFF PT: VII DISP: REWORK		1/18/83 1-20-83

	–	–		-002	CONTROLLER ASSY.	
1	–	27	014490-002	PANEL ASSY., CONTROL	(INCLUDES A1,M1-2,CR1-4,W3,A1W1)	
1	1	26	010229-001	LATCH, SPRING	(2 WITH HARDWARE)	
1	1	25	001134-001	TIE, CABLE		
1	1	24	001575-001	NUT, HEX.	#8-32	
1	1	23	014586-001	LABEL, GROUND		
1	1	22	014585-001	LABEL, WARNING		
1	1	21	010827-243	SCREW, PAN HD. PHIL.	#8-32 × .75 LG.	
2	2	20	001182-002	WASHER, EXT. STAR	#8	
2	2	19	012029-006	WASHER, INT. STAR	#8	
1	1	18	005485-001	WASHER, EXT. STAR	#6	
1	1	17	014577-001	CABLE ASSY	T/M CABLE W/ GRND. WIRE	W1
–	1	16	014490-001	PANEL ASSY, CONTROL	(INCLUDES A1,M1-2,CR1-4,W3,A1W1)	
.01	.01	15	007202-001	SEALANT, SILICON	RTV	
		14				
1	1	13	010011-015	LABEL, CAUTION		
2	2	12	002387-001	NUT, HEX.	#6-32	
1	1	11	012417-001	SCREW, ONE WAY HD.	#6-32 × .63 LONG	
3	3	10	012029-005	WASHER, INT. STAR	#6	
1	1	9	014583-002	WIRE SET, GROUND	#6 & #8 LUGS, 18 AWG	W2
4	4	8	002035-001	WASHER, PANEL	NYLON, #10	
4	4	7	010411-001	SCREW, OVAL HD.	#10-24 × 1.25 LONG	
6	6	6	010827-182	SCREW, PAN HD PHIL.	#6-32 × .38 LONG	
2	2	5	010400-001	NUTPLATE		
4	4	4	010221-001	BUMPER		
1	1	3	010397-008	ENCLOSURE	ANT. WHITE	
1	1	2	009957-006	END CAP	DK. BROWN	
1	1	1	009957-005	END CAP	DK. BROWN	
–	/	–	-001	CONTROLLER ASSY		

-002	-001	ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION

PARTS LIST

PREPRODUCTION

-002	———	MARKET
-001	———	MARKET
PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

UNLESS OTHERWISE SPECIFIED
ALL DIM. ARE IN INCHES TOL. XX ± —— .XXX ± —— ANGLE ± ——

DRAWN	S.K.PLAHN	11-9-82
CHECKED		12-28-82
ENGR.		1-4-83
QUAL		1-6-83
MFG.		1-7-83
OTHER		

QUANTITY PER ASSEMBLY
CLASS CODE CONA
VALUE CODE Q55TMC
DO NOT SCALE DRAWING PRINTS

Quinton instrument co.
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

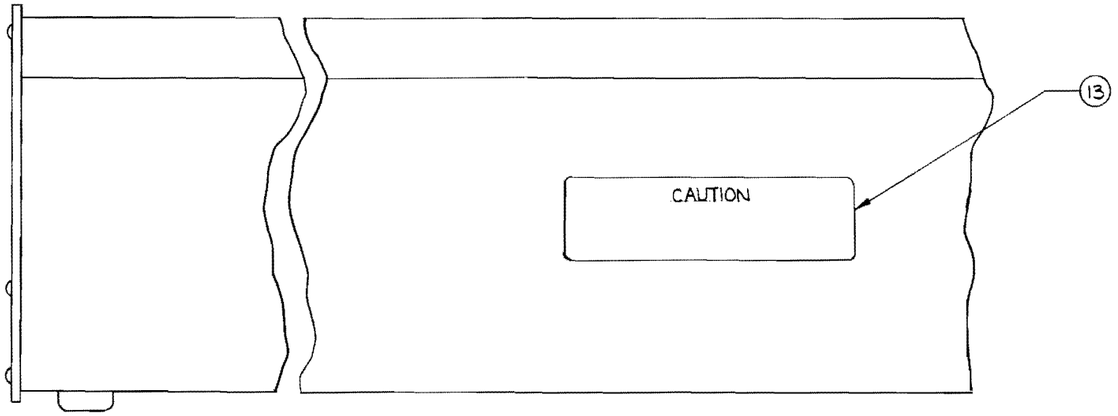
TITLE
CONTROLLER ASSEMBLY

SIZE	MODEL	DWG. NO.	REV.
D	Q55 T/M CONTROLLER	014544	A
SCALE ———	DIST. CODE	SHEET 1 OF 2	

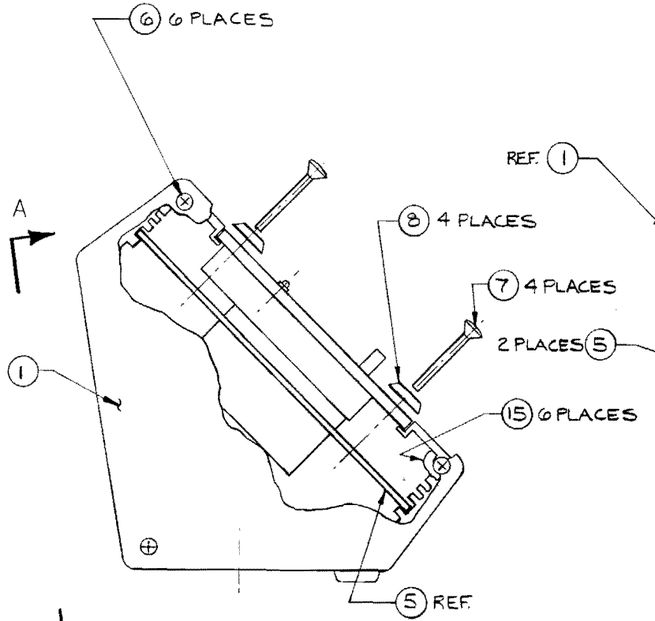
DWG NO 014544 SH 1 REV A

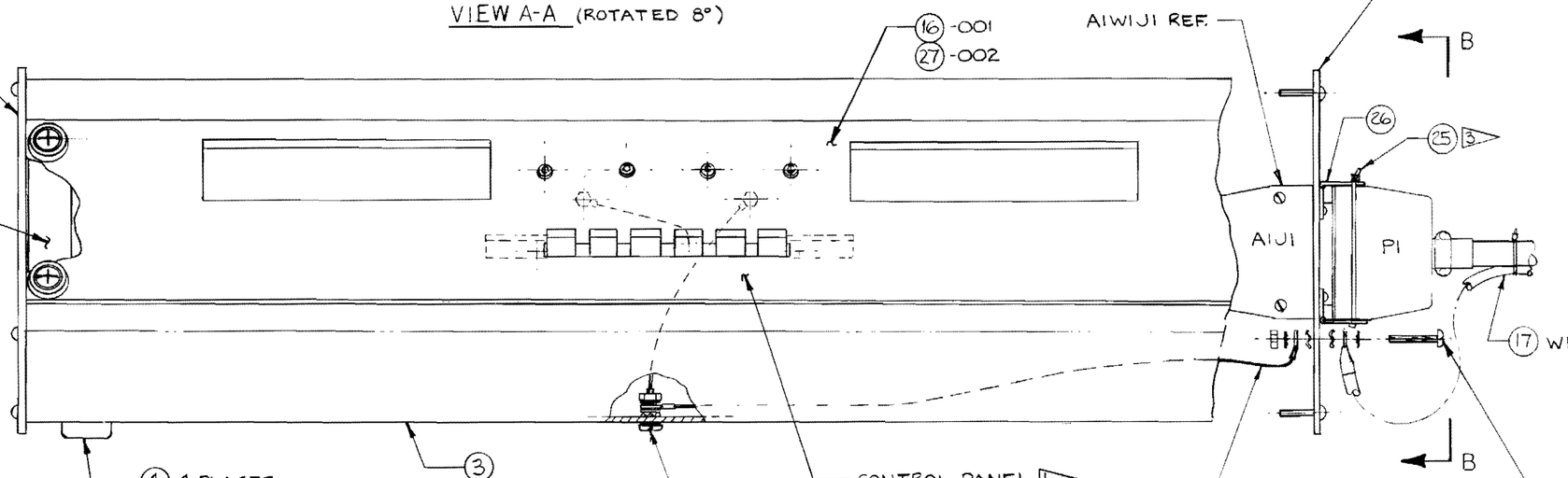
QF02-0018979

REVISIONS				
LTR.	ZONE	DESCRIPTION	APPROVED	DATE

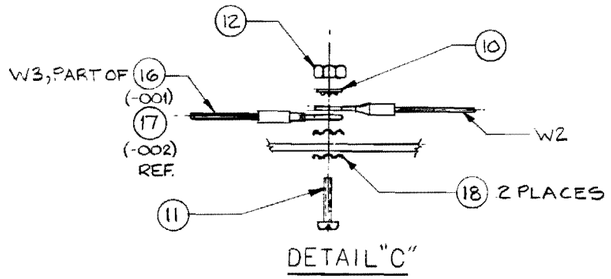


VIEW A-A (ROTATED 8°)

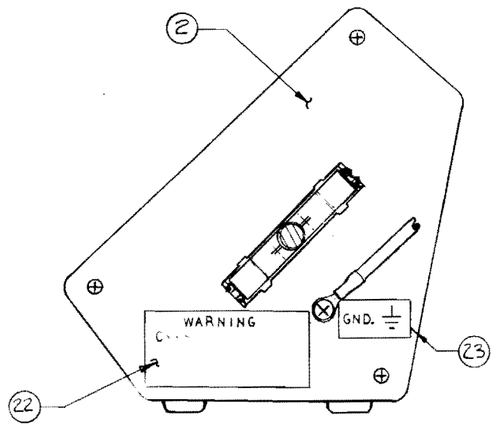




-001 & -002 SHOWN



DETAIL "C"



VIEW B-B

PART NO.	NEXT ASSY. NO.	END ITEM NO.
APPLICATION		

ITEM NUMBER	PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION	REFERENCE DESIGNATION
PARTS LIST				

UNLESS OTHERWISE SPECIFIED — ALL DIM. ARE IN INCHES — TOL. .XX ± .XXX ± ANGLE ±

DRAWN E. GEBENINI / K. PLAHN
CHECKED 5208
ENGR. 1-4-83
QUAL. 1-6-83
MFG.
OTHER

CLASS CODE
VALUE CODE
QUANTITY PER ASSEMBLY

DO NOT SCALE DRAWING PRINTS

Quinton
2121 TERRY AVENUE
SEATTLE, WASHINGTON 98121
206/223-7373

TITLE: CONTROLLER ASSEMBLY

SIZE	MODEL	DWG. NO.	REV.
D	Q55 TM CONTROLLER	014544	A

SCALE 1/1 — DIST. CODE — SHEET 2 OF 2

DWG. NO. 014544 SH. 2 REV. A

QF02-0018979